

THE  
INDUSTRIES,  
TRADE AND COMMERCE  
OF  
HARRISBURG.

BY  
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"STATE BOOK OF PENNSYLVANIA," ETC.

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## P R E F A T O R Y .

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THE design of this volume may be stated in very few words. It is to make the people of Pennsylvania, and people everywhere whose trade can be made tributary to Harrisburg, acquainted with the vast resources of the city, and the measure of their development. The thundering tongues of our factories and mills tell but half their story to the transient visitor to Harrisburg, and he leaves with a confused, even if it is an impressive notion, of the extent and character of our manufacturing industry. Those who have not visited the city have no adequate appreciation of our progress, or the degree of perfection our artisans have reached. We shall aim to make clear to the one, and educate the other by statements of facts, and by the eloquence of figures, precisely what has been accomplished in these great branches of manufacturing which lie at the base of a large proportion of the internal trade and commerce of the Union. One, indeed, has hardly to go outside of Harrisburg to find how little is known as to the reality of the city, and the value its productions bear to the aggregate of the manufacturing industry of the State. Harrisburg, it has often been said, is the worst advertised city in the Union. Its light has been hid under the bushel of its own business conservatism. Our great manufacturing establishments have sought obscurity rather than mercantile or business notoriety. They were content with what they themselves knew of the extraordinary progress of the city during the past twenty years. Old customers were retained by the superiority of our wares, and the failure of successful competition. New customers were not sought by the appliances—the simple art of letting people know what we were doing, and could do—brought into requisition with such magnificent results by western cities—great cities now—that were being rocked in their civic cradles when Harrisburg had achieved the highest honors of municipal dignity.

The papers on the various subjects to be treated of will be prepared with care and thoroughness of research. The aim will be to give the truth. Exaggeration would destroy their value, and defeat the purposes contemplated. We think they will justify the conclusion that from the very nature of things—the logic of facts as it were—no city in the Union presents better inducements for the investment of capital than are set forth by the successful operations of the furnaces, mills, foundries, factories, and other workshops of Harrisburg. In cheapness of production, in the character of the goods and wares, and in accessibility by railroad and canal to market, the Capitol city challenges the competition of the State.

## A LEAF OF HISTORY

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Harrisburg, the seat of justice of Dauphin county, and capital of Pennsylvania, is situated on the east or left bank of the Susquehanna river, one hundred and six miles from Philadelphia, one hundred and twenty-one from Washington city, two hundred and forty-eight from Pittsburg, eighty-two from Baltimore, and one hundred and eighty-two from the city of New York. It is situated in latitude 40 degrees 16 minutes north, longitude 5 minutes 30 seconds east from Washington city, or 76 degrees 50 seconds west from Greenwich, England.

The fords over the Susquehanna at this place were known to civilization long before the smoke of a white man's cabin ascended from the spot where the city now stands. They were the converging point of the great pack-saddle routes from New York and Philadelphia, *via* Easton and Lancaster, to Fort Pitt and the other settlements of the West, and for this reason they attracted traders and Indians just as fording places on leading thoroughfares attract the same class of people at this day in certain parts of the far West.

It was not, however, until about the year 1719 that any attempt was made to establish a permanent trading post at this point. At this period the fords were visited by John Harris, a native of Yorkshire, England, who lived near the present site of Bainbridge, Lancaster county. This gentleman was at once impressed with the peculiar advantages of the spot as a commercial centre, and lost no time in making extensive purchases of land about the fords with the view to a permanent settlement. He then erected a cabin on the bank of the river, brought his family here, and opened a profitable trade with the Indians, receiving their peltry and other objects of traffic in exchange for his ammunition and rum. In this occupation he seems to have acquired the esteem and friendship of his red neighbors, who treated him with much respect, and in one notable instance saved his life by rescuing him from a band of predatory Indians who had tied him to a tree with the view of burning him to death.

Mr. Harris died in December, 1748, and was buried where he had directed, under the shade of the tree to which he had been tied by the infu-

riated Indians when they attempted to burn him. The stump of this tree is still standing on the river bank, a short distance south-east of the Cumberland Valley railroad bridge, and is an object of much interest to strangers visiting the city.

In 1753, John Harris, a son of the first settler, applied for and received from "Thomas Penn and Richard Penn, Esquires, true and absolute proprietors and governors-in-chief of the Province of Pennsylvania and counties of New Castle, Kent and Sussex upon Delaware," a license for a ferry at his settlement on the Susquehanna, and the place from this date became known as Harris' Ferry. The settlement under this name is frequently mentioned in the records of the colony of Pennsylvania, as well as the neighboring colonies, as the place of holding Indian councils; and so generally well known was the ferry and its lessee, that settlers residing many miles from the place frequently received letters from Europe and elsewhere directed "care of John Harris, Harris' Ferry, U. S."

Impressed with the faith of his father that this point on the Susquehanna would, by its central position between the eastern and western settlements, acquire great business advantages, Mr. Harris is said to have predicted that Harris' Ferry would become the seat of government of Pennsylvania: and so strongly persuaded was he of the realization of his prophecy that as early as 1784 he issued the following proposals:

" PHILADELPHIA, *March 3, 1784.*

*"Proposals of John Harris for laying out a town on the river Susquehannah:*

" That the said John Harris will immediately (if encouraged by government) lay out a town of two hundred lots, on the high grounds above his present dwelling house, the lots of about the quantity of a quarter acre each, in such form with respect to streets, lanes and alleys as the commissioners may approve; a large street to be left for public landings along the river side. That the said John Harris agrees that the Honorable Assembly of this Commonwealth shall appoint commissioners to value his said lots, after reserving twenty lots for his own use; that the s'd John Harris will convey all the streets, lanes and alleys to the inhabitants of the said town, and will convey to proper commissioners a lot for a Court House and jail, and a square of four acres to the State of Pennsylvania, for such purposes as the government may apply the same, the applyers to have it at their choice to take the lots on a reasonable ground rent, or to purchase the fee simple of the same; the commissioners in both cases to be judges. That as soon as the s'd two hundred lots are built on or disposed of, and should there be a further demand for lots, the s'd John Harris engages that the public shall be accommodated at a reasonable rate.

" JOHN HARRIS."

The "Honorable Assembly" favored the above proposition so far as to lay out the county of Dauphin, and made Harris' Ferry its seat of justice, whereupon Mr. Harris ratified the offers in his proposal by conveying to certain commissioners a lot for a court house and jail, and four acres and twenty-one perches to the "State of Pennsylvania for public use and such purposes as the Legislature may hereafter direct."

The town proposed by Mr. Harris was laid out in the spring of 1785 by his son-in-law, William Maclay. The minutes of the second court held in the town are dated at Harrisburg; but on the 3d of August, 1786, the following entry appears on the docket:

The name of the county town, or seat of the courts is altered from "Harrisburg" to "Louisbourg" in consequence of the Supreme Executive Council of the Commonwealth so styling it in the commissions of the justices of the said town.

At this time the prejudices of the people ran high in favor of France, for the aid that Kingdom had given America during the revolution, and the judges of the Supreme Court conceived the notion that as the county was called after the Dauphin of France, the town should be called Louisbourg after Louis XVI. The sturdy John Harris, however, told the judges that they might "Louisbourg" the place as much as they pleased, but that he would never execute a title for a lot in any other name than that of Harrisburg, and his determination prevailed.

On the 16th day of May, 1791, the same court docket contains the following note:

"The name of the county town is altered to Harrisburg, in pursuance of an act of Assembly creating it into a borough under that name."

John Harris, the founder of Harrisburg, died July 29, 1791, aged sixty-five years, and was buried in the grave yard of Paxton church, near the city. His remarkable prophecy that his town would become the seat of government of Pennsylvania was fully realized in February, 1810, when the Legislature passed a law directing the removal of the Capitol from Lancaster to Harrisburg, and making appropriations for the necessary buildings.

## HARRISBURG TO-DAY.

The very location of Harrisburg seems to have destined it for a large and populous city. Within the last ten years it has doubled itself in almost every respect, and that without any adventitious aids. The sources from which it draws its supplies are in truth inexhaustible, and the germ of its prosperity is inherent in its unrivaled situation. The city will continue to thrive rapidly as long as agricultural and manufacturing interests shall occupy so important a position among the productive industries of the world, and as long as the vast beds of coal and iron with which Providence has blessed and enriched our State shall offer their tempting treasures to the capital and labor of the land. As to beauty of location it cannot, by words, be exaggerated, and its surroundings may, par excellence, be called a series of the masterpieces of nature. On the west, skirting the bases of its most select residences, themselves models of architectural beauty, flows the picturesque Susquehanna on its way through the delightful valleys and grand mountain gorges of central Pennsylvania. This lovely river, flowing so calmly and serenely through its broad, deep channels, and studded with islands innumerable, seems as it were to bind the brow of the city with a band of silver embossed with gems of emerald, thus decking her with jewels worthy of her present and prospective wealth and making her a thing not only of use but of beauty, which is a joy forever. The beautiful suburban villages lying upon the opposite bank, with their housetops and spires glittering in the sunlight and reflected in its water, seen through the mellowness of distance, add richness and variety to the landscape. Off further in the same direction, and at such a distance as to lend enchantment to the view, are seen a long line of hills and bluffs clothed with verdure and freshness, while in the greater distance beyond blue tinted mountains loom grandly toward the skies. On the north-east and south hills and mountain ranges, stand guard like lines of sentinels. Taking the river as the front, Harrisburg is built in a space which by the surrounding hills has been formed into a regular amphitheatre. The site of the city is a plain, except that portion called Allison's hill, which is somewhat elevated, and is large enough to contain a population of more than a dozen times that which the old Roman coliseum would accommodate. Its streets are lined with shade trees, and the larger number of fruit and ornamental trees in the gardens and yards of the residents give to it that air of freshness and verdancy so often observed in country villages. Towards the east and almost in the centre of the city as projected, are "Sylvan Heights,"—a range of hills and bluffs overlooking the old city.

On these heights are located the Catholic convent, Brant's residence and the Harrisburg cemetery, which with their variety of natural and artificial beauties crown the city with splendor. Lincoln park, Promenade park and the Capitol grounds are all handsomely located in or near the centre of the city, the latter being somewhat elevated and a perfect wonder of beauty. Giant shade trees, interspersed with the finest varieties of evergreens and shrubbery without end, cast their deep, cool shade over the walks and avenues and form the most delightful retreat for the residents of the city and the strangers who stop within her gates. Wandering through the labyrinth of walks, carriage ways, shrubbery and buildings, one can easily imagine himself in the midst of an ancient garden surrounded not only with nature's beauties but with the handiwork of man in its most artistic forms. Many improvements to this nearly perfect spot in nature are contemplated, which, when completed, will render the park attractive beyond description. It is understood that as soon as the new water works are finished the citizens will be delighted by several handsome fountains. Every effort is being made to clear up the grounds and present it fresh and bright to the people of the State than whom none are worthier of such a prize.

The river, upon the bosom of which lumber can be brought to our very gates, stretches its great length through the extensive timber region of the State, reaching out by its various branches into thousands of acres of primeval forests, and permeating them, stands ready as their natural messenger to carry their timber to the haunts of civilization. By this means timber can be brought to Harrisburg without paying tribute to railroads, as is the case when supplies have to be drawn from Williamsport, Lock Haven or other northern towns. A river like this is of incalculable value, saving as it does loading and unloading of lumber on cars after it is sawed. By this means our lumber merchants can sell lumber as cheap, if not cheaper, than towns nearer the lumber regions, because it costs less to get the timber delivered here than it does to transport it by rail from those places after it is sawed. Besides these advantages, the river is health-giving and food-producing and adds to the charms and beauties of the city. It is the source from which we get all our building sand, and it yields more stone than all our quarries put together. It also supplies the city with a boundless supply of pure water, the new water works drawing from this source of supply twelve millions gallons of water every twenty-four hours—enough to supply a city of one hundred and eighty thousand inhabitants. Thus the river is at once an adornment and of the greatest practical use to the city.

Another natural advantage of the city is the fact that the celebrated Lykens Valley coal is produced in vast quantities in the county of which

the city is the seat of justice, and within thirty miles of it. These anthracite coal beds are almost at our doors, and supply much of the coal used in the city. Harrisburg is also conveniently located near other beds of this same precious material, being as near the second, or middle, and the Lehigh anthracite coal fields as the city of Reading. Nor is the city less fortunately situated as to iron ore. This abounds in the neighborhood, and especially in York and Cumberland counties, within five miles of the city. These latter ores are of the very best quality, and extensively mined. Limestone, either for building purposes, or for lime or flux, is also extremely abundant. The river, indeed, seems to have cut its channel through it; as the high banks on either side of the stream are solid hills of this unpretentious but very useful stone. For building purposes a fine variety of sandstone is found in the vicinity, while inexhaustible beds of brick clay are worked in the eastern part of the city.

These great natural advantages are supplemented and made of double value by the acquired advantages with which the city is surrounded.

#### RAILROAD FACILITIES.

By force of its position, Harrisburg has become the dominating and absorbing centre of a distinct and independent system of railways radiating from it through every part of the United States like the spokes of a vast wheel.

The Northern Central railroad starts at Baltimore and passes through York to this city, thence it runs north through Millersburg, Sunbury, Northumberland, Williamsport, and on to Syracuse, Schenectady, Buffalo, etc., to New York city.

The Pennsylvania railroad starts from Philadelphia and runs through Coatesville, Lancaster city, Columbia, Middletown, to this city, thence goes west through Duncannon, Newport, Lewistown, Huntingdon, Altoona, Johnstown, Indiana, Greensburg to Pittsburg, and from thence by trunk lines to every part of the great west.

The Cumberland Valley railroad starts here and runs through Carlisle, Chambersburg, Shippensburg and Hagerstown to the Baltimore and Ohio railroad, and thence distributes its freight and passengers throughout the the Shenandoah valley and all the southern States.

The Philadelphia and Reading railroad starts from here and passes through Lebanon, Reading, and by its various branches through Easton, Allentown and a score more of large towns, to Philadelphia and New York cities.

The Dauphin, Schuylkill and Susquehanna railroad starts at Harrisburg and runs to Pottsville, passing through the intermediate towns, and from Pottsville distributes its freight throughout the whole of that coal and iron region.

The South Mountain railroad, after traversing the newly developed ore regions of York and Cumberland counties, has its terminus at Harrisburg.

The new railroad in course of construction from Hamburg, Berks county, to Rockville, a few miles north of the city, will connect with the Lebanon Valley railroad, and carry freight and passengers to Boston, without touching either Philadelphia or New York, thus shortening the present route eighty miles.

The Philadelphia and Reading railroad company have constructed a branch road through the southern part of the city, to Bigler & Son's saw mill, and one of the conditions to which they subscribed when they obtained this privilege, was that at any time upon invitation it would extend a track to all the iron works south of the city to the Pennsylvania steel works.

Thus it will be seen that the Pennsylvania railroad passes through our city from east to west, and the Northern Central, from north to south, while the Cumberland Valley goes south, but in a divergent line from the Northern Central road, while the Dauphin, Schuylkill and Susquehanna lines, although running along the Pennsylvania railroad track to Dauphin, there diverges, and run up into the anthracite coal region, as previously stated. In addition to these roads, the Harrisburg and Potomac railroad will cross the river near the Pennsylvania steel works, and enter the city from that direction.

Thus if we take our stand at the Pennsylvania railroad depot and look south, we see along a railroad track into Baltimore and Washington cities. If we look east, we see another leading into Philadelphia. If we turn our face north-east, we look along a track and see New York city. If we look north, we see another running to the northern part of the State, and into all the towns of the central part of the State of New York. If we turn south, we see one leading into the great Shenandoah valley and the whole of the eastern part of the southern States. If we look west, we see a track extending to Pittsburg, and from thence to the vast number of towns and giant young cities of the entire west. In short, we see in every direction railroads branching from the Harrisburg hub.

We not only have our own coal (as we familiarly term that obtained in Lykens valley,) but the Northern Central, Schuylkill and Susquehanna and the Philadelphia and Reading railroads, gather the "black diamonds" by millions of tons from the vast coal regions of the State, and bring them to and through our city to points south, east and west. Besides these great coal distributing agents, the Pennsylvania canal which passes through the city, brings many thousand tons annually from the Wilkesbarre coal region.

From the west, the railroad brings us bituminous coal, pig iron, grain and flour; from the south, are early fruits and fish, which reach our mar-

kets as soon as they reach the eastern cities; from the east merchandise of all kinds is obtained cheaper, because we have direct communication with it; from the north we receive timber and lumber. Thus the lumber regions, the anthracite and bituminous coal fields are in direct connection with us by canal, railroads and the river—while we have our luxuries directly from the south, and our merchandise at first hands from the east.

#### RAPID PROSPERITY OF THE CITY—FACTS ABOUT REAL ESTATE.

Harrisburg, in 1850, according to the census report of that year, had a population of some 6,000 inhabitants. About that time it began to thrive, and has since continued to prosper. Its population in 1860 was 13,000; in 1870 the census report gave it 23,000 of a population, thus continuing to increase in population at the rate since 1860 of ninety per cent. At the same rate of increase in 1880 the city will have a population of 43,000, and in 1890 of nearly 100,000—and can any good reason be furnished why it should not so increase? Has any unnatural excitement ever taken place? Has any adventitious aid been the cause of this doubling up of the population? The war, it might be said, was advantageous. If, after its subsidence the city had ceased prospering, this might be used against it, but on the contrary, while it gave some impetus, the city has continued to increase without this stimulus, and the case is apparent in the fact of the increased capacity of our manufacturing interests.

Since 1860 we have built over four hundred acres of additional ground to what the city occupied in that year, averaging yearly an increase of forty acres of buildings. This is a startling fact, and will cause even our own people to open their eyes and ask for the proof. We have it at hand. In 1860 the whole district north of North street was little else but meadow land. Now it is built up to Maclay street. Skirting the river from North street to Maclay street, and from the river to Twelfth street there is a district of at least five hundred acres, of which four-fifths are covered with buildings of the most substantial character. In 1860 Allison's hill had but five or six houses on it. Now at least fifty acres are built over, or occupied as gardens, and fifty acres more are laid out in building lots. All this, besides that portion of our city built over from Paxton street to the Lochiel iron works. One moment's reflection and a little calculation will serve to convince any thoughtful person that the estimate above given is not an exaggeration. In this respect it is out-running all our sister cities. By that we mean in its continual increase through such a long series of years; and when we remember all this increase of improvements is founded upon a most solid basis, and upon no mere ephemeral trade, such as the lumber business at Williamsport, but is owing to the natural position of

the city as a manufacturing centre in the State, and its great transportation facilities, we have every reason to believe that it will continue to grow and prosper in the future, as it has in the past, and unless we greatly misjudge, even at a more rapid rate. This increase in population has carried along with it general prosperity. As an instance, we will mention the Osler estate, which is familiar to all. It consisted, inclusive of streets, of five acres of land between Boas and Herr streets on the north and south, and Second and Third streets on the east and west. In 1860, the heirs of this estate were offered \$2,500 for the tract, or at the rate of \$500 per acre gross, that is including streets and alleys. This offer was declined. In 1863 the heirs were offered \$50,000, or \$10,000 per acre for the tract, an increase of \$9,500 per acre, which offer was also declined. In 1868, this same piece of ground was sold at public sale, and brought the enormous sum of sixty-three thousand dollars, or \$12,600 per acre, and those parts of it now vacant could not be purchased at less than \$20,000 per acre, or at the rate of \$100,000 for the whole, exclusive of buildings. At the present, six years later, Messrs. Fink & Boyer hold about one-half acre of this land for which they have been offered \$15,000, making the value of an acre \$30,000, which in 1860 could have been purchased for \$500. Other persons holding lands in the same neighborhood who purchased from the Foster estate ask prices still higher than those just given. In 1863, the school board bought a lot on Third street, near Briggs, for \$100. In 1868, deeming it expedient to sell it, they did so, realizing the sum of \$3,500 for the same. Nor are all these exceptional cases. Many individuals made much better bargains than these.

We will, however, cite another instance. In 1865 Dr. George W. Reily threw upon the market eighty-five acres of land, and has since sold it out, except five acres, having thrown it into lots at the rate of \$8,500 per acre. This almost a mile beyond the northern limits of our city in 1860. On Allison's hill property has increased at the same rate, as it also has in the portion of our city from Paxton street to the Lochiel iron works. Instances: In 1868 D. Mumma, Esq., purchased from Dr. Baily ten acres of land on Allison's hill, for which he paid \$16,000. He sold it in less than two years for \$32,000. The same gentleman bought from Miller two acres of land, and from Dock four acres of land, situated below Paxton street, in 1865-6, for \$2,500 per acre, and resold it in less than a year for \$5,000 per acre.

The rapid growth and corresponding increase in the value of real estate in Harrisburg and its suburbs is a financial wonder. There are many hard working men, who ten or fifteen years ago purchased a few acres of land near the city, upon which to make a living by raising vegetables for market, who have been enriched by the advance of city and suburban improvements upon their borders. The past experience in the growth of the city will con-

tinue to be repeated in the future. In no way, therefore, can one's surplus earnings be more profitably invested than in the lots and acres of such growing cities as Harrisburg. Persons inexperienced in the history of city and suburban real estate, are always apt to suppose that the time for good investments has passed, and especially so whenever property has risen greatly—perhaps ten or twenty fold above its original price when the town they are in was first started for city rank. They hesitate, wait for the price to fall, denounce speculation, complain of high prices, wait and lose the golden opportunity; or, often after two or three years of waiting, grumbling, predicting and delay, pay for what they then purchase two or more times the figures they previously thought too high. They thus pay very dear for their experience. This class of bargain seekers are incorrigible. There are large tracts of land within and near our city limits, of good quality for gardening and suburban improvements, waiting for purchasers at moderate rates, which, if the city grows as our people anticipate, will within ten years (basing our estimate upon the history of values of like property in the same relation to other cities) double and treble in value. Are not these grand chances for investments? A few acres, five or ten of these cheap lots, now secured, will lay the foundation for a competence in old age for many poor men who have the wise forecast to buy now.

Such purchases are in no wise wild or speculative, but a sure investment of a little money on the best security in the world, which cannot fail to yield an enormous rate of interest, which will go on compounding and accumulating without any other trouble or expense to the purchaser than the annual payment of taxes. Every man in moderate circumstances should endeavor to raise the means to purchase, without delay, a city lot or a few of these suburban acres, which may be had on easy terms of payment.

In the rapid expansion of our city thousands of now poor men who purchase these lots and acres will become enriched, and then the timid and doubting, who have not the wise forecast to do likewise, will lament their procrastination and lack of early comprehensive appreciation of the prospects of our city, and will deeply regret the loss thereby of their golden opportunities.

It is a notorious fact, and so much so as to excite the attention of all visitors from other cities, that real estate in and around our city, even at its present price, is incredibly low as compared with those of other cities. There is scarcely a town of fifteen to twenty thousand inhabitants in the country where lots can be bought as low as they are now selling in this city. But this state of things cannot long continue. Capital seeks the best possible investment. Such opportunities as are now offered for fortunes to be made by heavy investments in real estate in Harrisburg, do not occur twice in a life time.

The first note of warning that cheap real estate times are passing away from us, has been sounded. Within the past few years thousands of dollars have been invested in suburban property, and capitalists are now combining together to purchase these cheap lands. Therefore we say to you if you want homes of your own, get them now. You need two thousand lots; they can be had now, and at the prices named. But we feel safe in the prediction that these lots, which can now be bought at from \$200 to \$500, will more than double in value every year, and continue so to do for the next ten years.

## MANUFACTURES.

Nor is the prosperity of the city confined alone to the increased value of land. Within the last fifteen years manufacturing establishments have multiplied hand over hand. The census reports of 1860 and 1870 of manufacturing operations in Dauphin county, exhibit as follows:

## CENSUS REPORT OF 1860.

Manufacturing establishments.....	321
Capital.....	\$2,544,558
Cost of raw material.....	1,632,556
Value of products.....	2,946,382
Number of workmen.....	2,315

## CENSUS REPORT OF 1870.

Manufacturing establishments.....	587
Capital.....	\$6,557,520
Cost of raw material.....	9,248,585
Value of products.....	13,514,156
Number of workmen.....	4,865

These figures, of course, have reference to the entire county, but as there are comparatively few manufacturing establishments outside of the city, and these of limited capital, the reports for all practical purposes may be applied alone to Harrisburg. It will be observed by the figures that the increase in the number of establishments is nearly one hundred per cent. in the amount of capital invested, and the number of workmen it is considerably over one hundred per cent.; in the cost of the raw material, it is nearly three hundred per cent. and in the value of the products, it is over two hundred per cent.

The ratio of increase of manufacturing operations during the last four years, has in no wise diminished, and we are satisfied that the next census will show even a greater percentage of increase.

That Harrisburg is destined to be the third city in the State in manufacturing importance must be apparent to all who are familiar with its geographi-

cal location, and all concede the moment they become acquainted with its local advantages. One great fact in this connection is, that within the last ten years more foreign capital has sought investment in the city than has been attracted to any interior town or city of Pennsylvania for the last forty years. We mention this to show not a laggard disposition of our own people, who have displayed much enterprise in improving the city, but to enlighten those who are forever carping at improvements necessary for the protection of our growing interests, that it will require very little encouragement to double the amount of investment of both home and foreign capital in the city. There is no such natural location on the continent. We have every advantage in our favor. In the centre of a mighty railroad connection, giving the city an uninterrupted connection with the ocean in the east, the lakes in the north, the prairies of the west and the fertile fields of the south, while contiguous are the vast iron, coal, oil and timber resources of our own State. Thus situated, we cannot help becoming not only the third but a rival of the second city in the State.

It has been ascertained that our principal manufactories, hotels and printing establishments pay out to laboring men alone the enormous sum of \$300,000 per month, or \$3,600,000 per annum. If to this be added the other expenses, such as material, freight, fuel, &c., we shall have a grand aggregate of from twelve to thirteen millions of dollars as the annual expenses of the establishments indicated.

Taking these facts as such, is there any cause for wonder at the rapid growth of the city; that new streets are continually being laid out and opened; that miles of pavement are laid out every year; that lands in the city and vicinity increase in value perceptibly day by day, and that men are growing rich simply by owning and holding land; that the sound of the hammer and trowel are heard on every side, and that houses rise from the ground in a single day as if obeying the beck of some potent magician?

#### THE POLITICAL CAPITAL OF THE STATE.

Harrisburg was established in 1810 as the seat of government of Pennsylvania. Here, in a spacious building in the centre of the city, the Legislature assembles. Here the Governor and State officers reside. Here the Supreme Court of the Middle district holds its sessions, and here will shortly be erected a magnificent United States Government building to accommodate the postoffice.

#### BANKING FACILITIES OF THE CITY.

Harrisburg owes a great part of its prosperity to the prudent liberality and wise and sagacious management of its banks. They are nine in number, as follows:

The Harrisburg National Bank ; the First National Bank, which are national banks, the first named of issue, and the following State and private banks :

The Dauphin Deposit Bank ; the City Bank ; the Mechanics' Bank ; the Farmer's Bank ; the Real Estate Bank ; Bank of Dougherty Bros. & Co.

The extent of the business of the banks is shown in the fact that the aggregate of their average deposits is about \$3,000,000, and their average loans and discounts nearly \$3,500,000.

The fact that our banks passed through the panic of 1874, without either suspension or any material curtailment of accommodations is an evidence of their strength and sagacity, as well as the financial ability of our business men.

#### PUBLIC SCHOOLS.

The stranger is struck with the number, magnitude and fine architecture of the public school buildings in Harrisburg. There are twenty-three in number, of which eighteen are owned by the school board, and five rented. The estimated value of the city school property is over \$350,000. The schools afford room for about 5,000 scholars, but the rapid increase of the population has crowded so fast upon the school accommodations that they are behind the requirements of the city. The school system is an excellent one, and under the charge of an efficient superintendent.

#### CHURCHES.

More than forty churches attest the prevalence of religious zeal among the people of Harrisburg. Most of these edifices are very substantial and elegant, and some of them are remarkably fine specimens of ecclesiastical architecture.

#### GAS.

The city is supplied with gas whose mains extend for nearly thirteen miles through all the principal streets. The gas produced is of excellent quality, and furnished at a reasonable price.

#### DRIVES.

The city is furnished with beautiful drives in every direction, while the Park association grounds, a mile north of the city, is provided with one of the finest trotting tracks in the country.

#### STREET RAILWAY.

The city is traversed from its northern to its southern end by a street railway through or near its principal business thoroughfares, while a transverse track connects with the several depots.

## THE INDUSTRIES OF HARRISBURG.

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As it would be impossible to convey any adequate idea of the variety and extent of the important manufactures of Harrisburg in a work of this nature, we have confined ourselves to some of the leading features which render Harrisburg peculiar as a manufacturing city. The products of our manufacturing establishments enter into countless articles from the common place trifles in domestic use to the grandest and most beautiful achievements of human ingenuity and art. The iron from her mills is handled in every hamlet in the country, while her coal contributes comfort to countless firesides, reduces the valuable ores, and conducts to successful operation in the factory.

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### IRON HISTORY—FURNACES.

There is little, if any, peculiar interest attached to the history of the iron trade in Harrisburg. It is comparatively of modern origin—scarcely the growth of a quarter of a century—when the manufacture of iron had been reduced to a science as exact as the reduction of the ore, and therefore its history is not marked with the endless difficulties experienced by the early pioneers in the trade. There was no crude machinery to test—no unsatisfactory processes employed—in short, no trials and troubles incident to new undertakings to be overcome, but like Minerva springing full armed and equipped from Jupiter's brain, the trade sprang into existence here full fledged, with perfected machinery and all the appliances that rendered success a foregone conclusion. Of course these remarks apply only to the foundation of the present iron trade of the city; that which existed prior being merely of local significance and very limited operation.

The earliest manufactory of iron in Harrisburg, outside of the ordinary "village smithy," of which we have any record, was the nailery established in 1785 by Henry Fulton, on Front street below Market. The nails were cut by rude machinery and was a slow and tedious process in comparison with nail making of the present day. Previous to the establishment of Mr. Fulton's nailery, nails were purchased and brought from Lancaster and Philadelphia, so that the item of transportation formed a very material part of the cost of the article; and we can readily imagine therefore the interest with which our staid, economical forefathers regarded Mr. Fulton's enterprise, as it necessarily involved a reduction in the price of

that very essential commodity. We are assured that Mr. Fulton's nailery was well patronized in the fact that like all successful trade it produced competition. Thus we find that Michael Kapp, the father of A. E. Kapp, Esq., of Northumberland county, William Allison, the father of Judge Allison, of Philadelphia, Daniel Houser and Wm. Porter, were owners of cold nail factories shortly after Mr. Fulton inaugurated the business here. But as we have previously remarked these establishments supplied chiefly a local trade—had but a small amount of capital invested—and when driven out of existence by the introduction of modern machine-made nails, their absence scarcely created a marked void in the business operations of the place—village as it was. Indeed, we have only alluded to these naileries, because outside of the before mentioned smithies and a single foundry, to be mentioned hereafter, they were the only establishments working in iron that had an existence in Harrisburg prior to the year 1840—a fact which in the comparison gives a bolder relief to the suddenness of the rise—the swiftness of the progress, and the prodigious extent of our present iron trade.

The first manufacturer of iron in Harrisburg on a more extended scale, was commenced about the year 1840, when Messrs. Hunt & Son erected a large rolling mill, adjoining Le Barron's saw mill, on the Pennsylvania canal a short distance north of the present fire brick manufactory. This mill manufactured sheet iron, nail and spike rods, and was operated with indifferent success for a few years, when it, with the adjoining saw mill, were totally destroyed by fire, causing the pecuniary ruin of the proprietors. The mill was rebuilt, with improved machinery, and put in operation in 1845 by Messrs. Pratt & Son, of Baltimore, who worked it for several years, but not meeting with that degree of success their enterprise deserved, they suspended operations, and transferred their attention exclusively to the nail factory also owned by them at Fairview, nearly opposite the city.

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### THE HARRISBURG FURNACE.

If these early ventures in the iron trade were comparative failures, they did not deter others in the attempt to establish iron manufactories in Harrisburg. While the rolling mill of Messrs. Hunt & Son was still lying in a ruined mass in the southern section of the town, David R. Porter, then Governor of the State, in connection with one of our citizens, Michael Burke, Esq., were quietly and unostentatiously raising the walls of the present Harrisburg furnace, in the northern section of the town. To the eye of the casual observer of that day, the site selected by these gentlemen for the development of their enterprise, was certainly a very unpromising

one. It was located literally in a swamp that extended east as far as the cemetery ridge, south as far as Market street, and north to the Blue Mountain: but it was flanked on the west by the capacious basin of the Pennsylvania Canal, at that period the great and only channel of transportation from the rich coal and iron mines north of Harrisburg, which important fact compensated in a ten-fold degree for the short comings of its other surroundings, and identified the spot as the very best that could be selected for a fair trial of what was then considered a very grave experiment. It required only a few years to drain the water from the surrounding swamp, and change the spouty soil to hard and stable ground; and the establishment is now reaping the advantages foreseen by its sagacious founders.

The furnace was the pioneer of blast furnaces in Harrisburg, and, we believe, in the county; and we can well remember the curiosity with which our citizens witnessed its early operations.

Messrs. Porter & Burke continued in partnership only a few years when the latter gentleman withdrew, and the furnace was operated alone by Gov. Porter, who continued to run it for several years with fair success, when it suspended operations and finally became the property of the Harrisburg bank. In 1868 the bank sold it to Price & Hancock, who remodeled it with an enlarged capacity, and continued the business until by the death of Mr. Hancock it came into possession of the present firm of Price Brothers.

The furnace itself has not escaped the usual vicissitudes of time. It was nearly destroyed by fire while owned by Gov. Porter, and a year or two since was much damaged by the falling of an immense smoke stack. Over \$38,000 has been expended in remodeling and repairing the furnace since the year 1868.

The furnace as it stands at present has a twelve foot bosh, a thirty-nine foot stack, and a capacity of four hundred and fifty tons per month.

The following is one month's exhibit of the consumption of material and employment of labor by the furnace:

#### COAL.

Anthracite.....	654 tons.
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#### IRON ORE.

Cornwall.....	228 "
York county.....	328 "
Virginia pipe.....	55 "
Fossil.....	67 "
Limestone.....	332 perches.
Labor.....	\$1,818

These figures, for what is said to be a fair average month, fixes the grand total of the annual production of the furnace at 5,400 tons of iron, and the consumption of ore at 8,136 tons, limestone, 3,981 perches, and labor \$21,816.

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### THE PAXTON FURNACES.

There are two epochs in the iron business of Harrisburg, each commanding its mechanical genius and wealth in a very large degree, the first, which we have already described, acting as the forerunner of the second, which we are now about to record in all its magnificent details.

In 1853 two enterprising gentlemen with experience in business, and forecast as to the direction trade would take in Pennsylvania, discovered that Harrisburg must become a great centre of manufacturing, and where, if in any part of the Middle States, the production of iron could be followed with great profit. Imbued with this idea, Messrs. Bryan & Longenecker, of Lancaster, projected what is now known as Paxton furnace, No. 1, and located it in the southern suburb of the then borough of Harrisburg, a spot supposed to be perpetually devoted to agricultural purposes. But Messrs. Bryan & Longenecker were not exactly the men to make the development in this particular, which was ultimately accomplished by one more adapted for so extensive an enterprise. It was not merely the establishment of a smelting furnace that was to be profitably demonstrated, but the attraction of foreign capital to this locality by the bold enlargement of the iron business that must be secured before that most hazardous of all other businesses could be firmly maintained. The late James M'Cormick and Robert J. Ross, Esqs., purchased the interest of Messrs. Bryan & Longenecker in the Paxton furnace, and placing it in charge of Henry M'Cormick, Esq., one of the present owners, proceeded at once to the vigorous prosecution of the business. It required but a few years of his judicious management to show that iron could be made as cheap in this vicinity as in any other part of the world. After the decease of Mr. Ross, the entire property was purchased by Mr. M'Cormick.

After operating the Paxton furnace for a number of years, the M'Cormicks expanded their business to such a degree that it became necessary to add another furnace, which was erected near the old establishment, and put in blast in 1872, and is called Paxton furnace, No. 2.

Furnace No. 1 has a 43 foot stack, a 14 foot bosh, a blowing tub or cylinder seven feet in diameter by seven feet long, a beam engine, and a capacity of 600 tons pig iron per month.

Furnace No. 2 has a 60 foot stack, with a bosh and blowing tub of the same dimensions as No. 1. It is supplied with a horizontal direct acting blowing engine, and its capacity is the same as No. 1.

## ANNUAL PRODUCTS.

	Tons.
Pig iron.....	14,000

## ANNUAL CONSUMPTION.

Anthracite coal.....	24,000
Limestone.....	16,800
Iron ore.....	<u>33,600</u>

Nearly all the pig iron manufactured by McCormick & Co., is consumed by the nail works and rolling mills owned by the same firm.

The iron ore used embraces primitive from York county and New Jersey, and brown hematite from Cumberland and Lebanon vallies.

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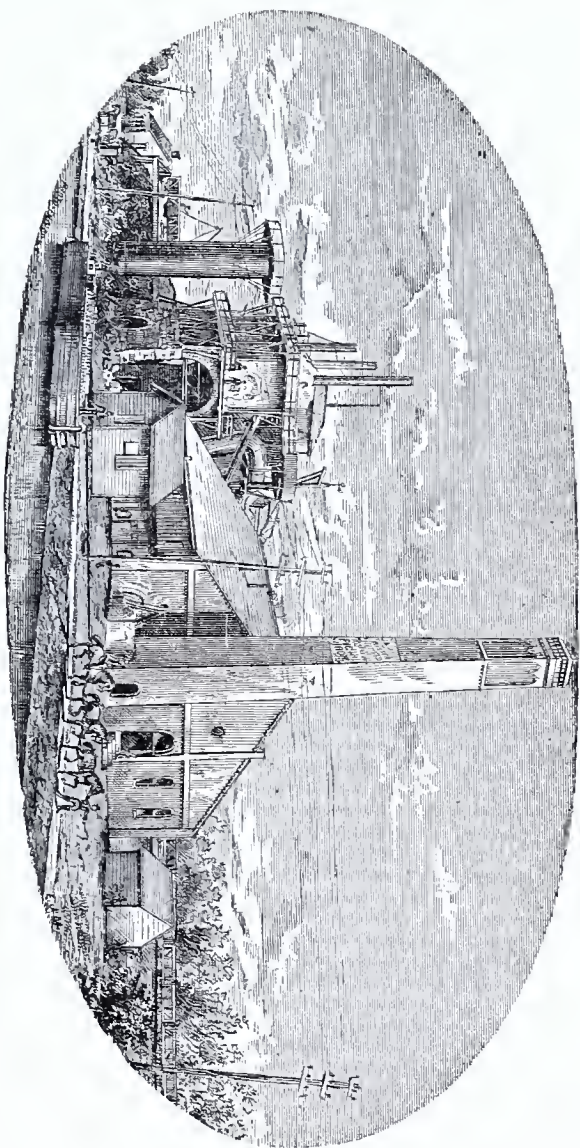
 THE WISTER FURNACE.

The Wister furnace was built by J. & J. Wister, in the year 1867, on the tongue of land lying between the Philadelphia and Reading railroad, on the east, and the Pennsylvania canal on the west, two hundred and fifty yards below where the former crosses the latter.

The digging of the foundations for the stack and machinery presented a singular geological formation; the slate rock on which the walls rest was almost level for a distance of 150 feet, showing that at one time a river here made its bed. The bosh is fourteen feet across. The height of the stack is forty-five feet. The engine was built in Baltimore by Denmead & Son. It is of the horizontal pattern, driving two blowing tubs, each six feet in diameter and six feet stroke, blowing 7,500 cubic feet per minute.

The velocity of the engine is indicated by a dial attached to a ratchet, worked by a governor. This device was invented by the chief engineer of the furnace, as a means of keeping the engine at a regular speed. Furnacemen will appreciate the value of this machine, as the regularity of the work depends upon the volume of air being constantly the same. The dial shows at all times the exact speed at which the engine is running.

The pneumatic hoist is built after the John Fritry pattern and has worked with great regularity. The location is one of the most desirable in the State. Situated between the railroad and canal it draws its supplies from both sources.



WISTER'S FURNACE, HARRISBURG.



The ores smelted are magnetic, with some fossil and hematite. The fuel is anthracite coal from the Schuylkill region, shipped on the Schuylkill and Susquehanna railroad, a branch of the Reading. The annual consumption is:

	Tons.
Anthracite coal.....	12,000
Iron ore.....	14,000
Limestone.....	6,000
The annual product.....	6,100

### THE LOCHIEL FURNACE.

This furnace was put in blast on the 14th of April, 1873. It has a fourteen foot bosh, a fifty-two foot stack, and a blowing tub engine of a four foot stroke and eighty-four inch diameter—the latter a successful experiment, showing that a short stroke engine is equal, if not superior, to long stroke engines for the use of furnaces.

#### ANNUAL PRODUCTS.

	Tons.
Pig iron.....	7,200

#### ANNUAL CONSUMPTION.

Anthracite coal.....	12,000
Iron ore.....	18,000
Limestone.....	7,800

The iron ore used by the furnace is brought chiefly from Franklin and Juniata counties, and the pig iron manufactured is consumed in the other works of the company

### FURNACE OF THE PENNSYLVANIA STEEL WORKS.

This furnace was put in blast on the 14th of October, 1873. It has a bosh of fourteen feet, a sixty foot stack and a blowing tub engine of five foot stroke.

#### ANNUAL PRODUCT.

	Tons.
Pig iron.....	7,200

## ANNUAL CONSUMPTION.

	Tons.
Anthracite coal.....	12,000
Iron ore.....	16,800
Limestone.....	9,600

The ores used by this furnace are all of the magnetic variety, and are obtained chiefly from New Jersey. The pig iron manufactured is consumed by the steel works.

## NEW FURNACE OF GILLIARD DOCK &amp; CO.

A new furnace has just been completed a short distance below the steel works, which will be put in blast in a few months. It has a ten and a half foot bosh, forty foot stack, and a capacity of about 400 tons per month.. Its consumption will approximate to that of the Harrisburg furnace—its bosh corresponding nearest to that in size. We shall therefore estimate its annual production of pig iron at 5,000 tons, and its annual consumption as follows :

Anthracite coal.....	7,500 tons.
Iron ore.....	8,000 “
Limestone.....	3,000 perches..

This comprises the number of furnaces at present in operation in our city ; and as eloquent as the figures appear in their places it is only when we bring them together into an aggregate body that the vastness of this first principle of the iron trade of the Capital city becomes more prominently apparent.

## ANNUAL AMOUNT OF PIG IRON PRODUCED.

	Tons..
Harrisburg furnace.....	5,400
Paxton furnaces, Nos. 1 and 2.....	14,000
Wister's furnace.....	6,100
Lochiel furnace.....	7,200
Steel works furnace.....	7,200
New furnace.....	5,000
Total.....	44,900

## ANNUAL CONSUMPTION OF IRON ORE AND COAL.

	IRON ORE. Tons.	COAL. Tons.
Harrisburg furnace.....	8,136	7,848
Paxton furnaces, Nos. 1 and 2.....	36,600	24,000
Wister's furnace.....	14,000	12,000
Lochiel furnace.....	18,000	12,000
Steel works furnace.....	16,800	12,000
New furnace.....	8,000	7,500
Total .....	101,536	75,348

Gratifying as these results must necessarily appear, they are still more so when we compare the progress of this branch of our iron trade with that of other cities—even with that of Pittsburg, the “Iron City,” par excellence, of the State and Union. We derive from authentic sources that up to the year 1870 that city had but seven furnaces, precisely the number that we have in 1874. The largest of these establishments had a fourteen-foot bosh, fifty foot stack and a capacity of 700 tons per month. It is seen that Harrisburg has five furnaces, each with a fourteen foot bosh, which can be worked up to the same capacity. The actual production of the seven Pittsburg furnaces in 1870 was 48,000 tons, only 3,000 tons more than that produced by the seven furnaces of our city. True, the smoky city has made advances in this branch of trade since that period, and erected additional furnaces, among which is the “Lucy,” said to be the largest in the United States; but the fact is not the less important that in 1874 our city had the same number of furnaces, with the same capacity as the city of Pittsburg had in 1870. It is something to know that we are four years only behind the iron manufacturing metropolis of the country in at least one branch of the iron trade.

This fact becomes all the more striking when we consider the difference in the population of the two cities. In 1870, Pittsburg had a population of 121,979, while the population of Harrisburg in 1874 is but little, if any, over 35,000. This by the rule of proportion would actually give us to-day a larger interest in this branch of iron production than Pittsburg.

## THE FOUNDRY INTEREST.

Harrisburg seems to have been the pioneer of the foundry business in central Pennsylvania. As early as the year 1824—four years before the water was let into the ditch of the Pennsylvania canal, and twelve years before the whistle of a locomotive sounded west of Lancaster—Jno. S. Wiestling, a brother of George P. Wiestling, coal dealer, built a foundry on the river bank, opposite the present site of Cumberland street. It was constructed on what was then known as the “air-blast” principle, having no cupola, but unfortunately, either through the unskillfulness of the superintendent, an Englishman named Lewis, or some defect in the method of operation, it proved a miserable failure—the molten iron not unfrequently chilling before it reached the casting boxes. Nothing daunted, however, Mr. Wiestling employed a new superintendent, a man from Baltimore, named M’Cargle, who at once re-modeled the foundry by adding a cupola, thus changing the system to that in use at the present day. With this alteration the establishment became a success, and was worked for several years by Mr. Wiestling, when, through some outside speculation, he became financially embarrassed, and the foundry was sold at sheriff’s sale to Mr. John H. Fox. This gentleman continued the business for a few years, and then leased the foundry to the late Charles Carson, Esq., who retained possession of it until 1844, when Mr. Fox sold out to Mr. Wm. Jennings, whose son still continues it as a part and parcel of the Franklin iron works.

Notwithstanding the marked failure of the air blast principle in Mr. Wiestling’s foundry, the Englishman Lewis, who evidently had an abiding faith in the soundness of that method, formed a partnership with two men named Carthouse and Ruetter, and erected an air foundry on Paxton creek, somewhere about the present site of Sheesleysville, which, like Lewis’ previous attempt, also proved a failure, and the concern was abandoned.

The next cupola foundry in Harrisburg was built a short time prior to the year 1835, on the west side of Fourth street, near Strawberry alley, by Messrs. Baldwin & Graydon. This establishment proved a profitable venture. Mr. Baldwin, however, died a few years after commencing business, and the firm then became Graydon & Brnmbagh, who after running the foundry for several years, sold out to James M. Bay and one of the brothers Small, of York. These gentlemen subsequently removed the foundry from Fourth street to the buildings erected by them at the corner of State and Canal streets, where they operated successfully for several years, when

Mr. Small, having large manufacturing interests in York, withdrew from the concern and Mr. Bay continued the business alone until his death, in 1863, when the establishment came into the possession of his nephews, Bay Brothers, the present owners.

With this brief sketch of the past history of the foundry business in Harrisburg, we shall now proceed to show the extent of that interest in our city to-day.

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#### EAGLE WORKS' FOUNDRY.

Size of building—100x60 feet.

Two cupolas—joint capacity, 20 tons per heat.

Character of products—Machine casting, cider mills, mechanics' tools, etc.

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#### HARRISBURG CAR WORKS' FOUNDRY.

Size of building—220x60 feet.

Four cupolas, viz: One of 10 ton, one of 12 ton, one of 15 ton and one 25 ton, making jointly 62 tons per heat.

Character of products—Car wheels and all description of railroad castings.

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#### HARRISBURG MACHINE SHOP FOUNDRY.

Size of building—200x50 feet.

Three cupolas, each 15 ton, making jointly 45 tons per heat.

Character of products—Rolling mill and furnace machinery, steam and hydraulic engines, machinists' tools, etc.

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#### STOVE WORKS' FOUNDRY.

Size of building—100x80 feet

One cupola—capacity, 15 tons per heat.

Character of products—Stove castings.

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#### BAY BROTHERS' FOUNDRY

Size of building, 60x40 feet.

One cupola—capacity, five tons per heat.

Character of product—General castings.

## WILLSON'S FOUNDRY.

Size of building, 75x40 feet.

One cupola—capacity, five tons per heat.

Character of products—Agricultural implements.

## FRANKLIN IRON WORKS' FOUNDRY.

Size of building, 76x45 feet.

Two cupolas—joint capacity eight tons per heat.

Character of products—Ornamental architectural, and ornamental iron work generally.

## FOUNDRY OF THE PENNSYLVANIA STEEL WORKS.

Size of building, 97x51 feet.

One cupola—capacity, 12 tons per heat.

Character of products—Ingot moulds, and castings for the steel works generally.

This completes our list of the foundries in this city. It will be seen that their number are eight, and that their cupolas jointly are capable of turning out 172 tons of casting per heat, or day.

The amount of coal daily used in the productions of our foundries is about twenty-five tons; and a singular fact in this connection is that the better the quality of the iron the more the coal used in smelting it.

The products of our foundries, as we have shown, embrace almost everything from a ponderous steam engine to the most delicate mathematical instrument, and as fully two-thirds of these are shipped abroad they are creating for our city and mechanics a reputation of the most flattering character.

The annual amount of production and consumption of the seven foundries are as follows:

	Tons casting.	Tons coal.
Hickok's.....	6,210	891
Car works.....	19,344	2,766
Machine shop.....	14,040	2,000
Stove works.....	4,680	668
Bay Brothers.....	1,560	222
Wilson's.....	1,560	222
Franklin works.....	2,496	356
Steel works.....	3,743	535
	<u>53,660</u>	<u>7,660</u>

This exhibit shows an increase in the foundry business of Harrisburg of over 150 per cent. of what it was twenty-five years ago—a result the more gratifying when we draw another comparison with those achieved in the same line of business by the city of Pittsburg. A local statistician estimates the increase in the foundry business of that city, during the past twelve years, at fifty per cent. of what it was in 1858. Now, if our increase has been 150 per cent. in twenty-five years, it necessarily follows that we have advanced nearly fifty per cent. in the business more than the Iron city in a proportionate part of the same time, even without taking into consideration the difference in population between the two cities, which would nearly double the percentage of increase, and show in the comparison a progress on the part of Harrisburg that is truly marvelous.

THE ROLLING MILL INTEREST.

We have already shown that the first rolling mill in Harrisburg was erected about the year 1840 on the canal near Paxton street, by Messrs. Hunt & Son. This establishment was limited in its operations, one of the mills of the present day producing more in a month than it turned out in a year. The enterprise does not seem to have been a successful venture, and after running several years the building was destroyed by fire, which caused the pecuniary ruin of the proprietors.

The second mill was established about the year 1845 on the site occupied by the first one, and was built by Messrs. Pratt & Son, who subsequently sold out to the late James McCormick, Esq. This gentleman leased the establishment to the Baily Bros., who, after running it successfully for several years, transferred their interest to the Central iron works on the canal at Herr street. The machinery of the mill was then removed to other establishments owned by Mr. McCormick, and the building itself was shortly afterwards destroyed by fire.

THE CENTRAL IRON WORKS.

This establishment, as already stated, is located on the south side of Herr and Seven-and-a-Half streets. The tracks of the Pennsylvania railroad run along the west side of the mill, while the Pennsylvania canal flanks it on the east side, thus affording the best possible transportation facilities. The size of the building is 120 by 90 feet. There are four boiling, or puddling furnaces, and two heating furnaces. The steam, or trip hammer, strikes a blow equal to two tons. There is but one train of rolls of twenty and one-quarter inch diameter, which are capable of making a plate two inches thick. The machinery is driven by three steam engines with a joint power of 200 horses. The annual products of the mill are about 2,500 tons of puddled bloom iron, which is converted into boiler and tank iron, and shipped principally to New York State and western markets. Seventy tons of iron and 120 tons of coal are consumed weekly by the establishment, from which data we give the

ANNUAL CONSUMPTION.		Tons.
Iron .....		3,640
Coal .....		6,240

## THE HARRISBURG NAIL WORKS,

Are situated on the Conodoguinet creek, near its junction with the Susquehanna river, opposite the city. It has one of the finest water powers in the State, the dam providing it being 300 feet long, with a fall of eight feet. The original establishment was built over forty years ago, and was long operated by Hon. A. O. Heister. Messrs. Pratt & Son took possession of it about the year 1844, and after running it a number of years, sold out to the late James M'Cormick, Esq., who associated with him Charles L. Bailey, Esq., an experienced iron man, under whose skillful management, the mill proved a financial success. Mr. Bailey subsequently retired from the concern to attend to other iron interests, and the death of Mr. M'Cormick following, the establishment finally came into the possession of Henry M'Cormick, James M'Cormick and J. D. Cameron, Esqs., who continue to operate it under the direct control of Henry M'Cormick, treasurer, as trustees of the M'Cormick estate.

Under the present management the works have doubled their former capacity, and are now ranked as one of the largest establishments of the kind in central Pennsylvania.

In our description of the rolling mill, we shall necessarily include that of the nail factory, as the former is simply a feeder to the latter, most of the iron rolled being used in the manufacture of nails.

The making of nails is one of the oldest of the handicraft arts, probably dating as far back as the art of working metals. We have already alluded to the nails made in Harrisburg ninety years ago. The nailer in those days required for his trade, a small forge fire, an anvil, several hammers and heading tools or bores for the different sorts and sizes of nails. The end of the nail rod was first heated in the forge fire, the smith having two or more rods in at the same time, according to his skill. The body of the nail was then formed on the heated end and cut off by a chisel fixed in the anvil block. While still hot the nail was then placed in a bore or heading tool, and the head fashioned with a hammer. The bore was a piece of strong iron with a steel knob at each end, perforated for the size of the shank of the nail and countersunk to correspond with the head. The first machine for dispensing with hand labor was made about 1790. It was, however, only proposed to use water or other mechanical powers to move the hammers, and other appliances for making nails similar to those made by hand. The next step in advance was the machine of Clifford, of Bristol, England, patented 1790. He used two iron rollers faced with steel, in which were sunk impressions or forms of the nails, half of the form being in each roller and arranged, circumferentially, so that a bar of iron being passed between the rollers, came through a string of nails, the head of one

nail being slightly joined to the point of the rest; these were then separated by shears or nippers. Sometimes several rows of indentations were made in the surface of the rollers, and instead of bars, a slip of sheet iron was passed through, and being forced into the dies were formed into nails. Still another method was to form nails by casting, but these were too brittle to be of much service. Nails made by either of the processes already mentioned were very expensive, and in the United States where so many wooden structures had to be erected by the settlers, cheap nails was of the utmost importance. It was under the stimulus of this pressing necessity, that about the year 1790 ingenious men set to work to invent nail machines.

It is difficult to ascertain who it was that first conceived the idea of cutting nails from rolled plates of iron. At first the nails were cut from a slip or hoop and headed by a few blows of a hammer while grasping them in a vice worked by the foot. But very soon machines were made to cut and head the nail at one operation. The first patent was for a machine for cutting nails, March 23, 1794, and the first patent for a cutting and heading machine was granted to Isaac Garetson, of Pennsylvania in 1796. Afterwards several other patents were granted, among which was one to Jesse Reed, which with later improvements is that still most largely used. Many of the first inventors spent large sums of money on their machines; and it is estimated that it cost \$1,000,000 to bring the machines to the perfection they had acquired in 1810, when a machine made about one hundred nails a minute.

With these few leaves from nail history we proceed with our description of the character and capacity of the Harrisburg nail works.

The puddling mill has nine puddling furnaces, and one train of nineteen inch rolls with a rotary squeezer. The machinery is driven by two turbine water wheels.

Products—Puddle bars, of which two hundred tons are manufactured per week.

The nail-plate mill has three heating furnaces and a train of nineteen inch rolls, driven by steam.

Products—Nail-plate, fourteen and a half inches wide.

The nail factory has seventy-three nail machines with a capacity of 3,500 kegs of cut nails and spikes per week. The machinery is driven by three turbine water wheels.

The entire works consume forty tons of bituminous coal per day.

The annual amount of the products of the works foot up as follows:

Puddle bars.....	10,400 tons.
Nails and spikes.....	182,000 kegs.
Bituminous coal consumed.....	12,480 tons.

## PAXTON ROLLING MILL.

This establishment is located directly on the line of the Pennsylvania railroad and near the Pennsylvania canal, in the First ward, and owned and operated by the estate of James McCormick, deceased, under the management of John Q. Denny.

The main buildings cover an area of ground of 250x160 feet.

The puddle mill has five double puddling furnaces, one train of twenty inch rolls and a steam hammer of three tons weight.

Products—Puddle iron.

Capacity—130 tons per week.

The plate mill has five heating furnaces, one set of sand rolls and one set of chilled rolls, both sets of twenty-five inch diameter: also a smaller train for breaking down blooms.

Products—Boiler and ship plate and tank iron, of which 10,000 tons are manufactured annually.

The amount of coal consumed in the works is about thirty tons per day.

The annual amount of products are as follows:

	Tons.
Puddle iron.....	6,760
Boiler and ship plate and tank iron.....	10,000
Bituminous coal consumed annually.....	9,360

## THE CHESAPEAKE NAIL WORKS.

These extensive works are also located on the Pennsylvania railroad, near the canal, in the First ward. They were built in 1866 by Charles L. Bailey & Brother, the present proprietors. The buildings, including dwelling houses for workmen, cover about seven acres of the seventeen owned by the firm: the remainder is used for coal and ore banks, pig iron, etc.

The work-shops comprise a puddle mill, a nail plate mill and nail factory, all exceedingly large and substantial structures, and a variety of smaller buildings devoted to blacksmithing, cooperage and counting house purposes.

The puddle mill has fourteen puddling furnaces, squeezer and one train of rolls. The nail plate mill has three heating furnaces, one train of rolls and shears for cutting nail plate. The nail factory has sixty-six nail machines, which for compactness and the amount of work they perform, are probably excelled nowhere in the United States. Indeed, the machinery throughout the entire establishment, is of the latest and most approved

character, and by its superior effectiveness, affords one of the best possible examples of the advantage of applying scientific knowledge to industrial processes. The product of the factory is six hundred kegs of nails per day, all of which find a ready market.

The success of the Bailey Brothers is a proof of their business capacity and their talent for industrial organization; while the affectionate regard in which they are held by those whom they employ, and the confidence and respect they have acquired in the community, are evidences of their high character.

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### THE PENNSYLVANIA STEEL WORKS.

The manufacture of steel in the United State is of comparative modern date. Philadelphia manufactured steel in 1820, and the production of Pittsburgh steel commenced in 1829. The enterprise in the latter city was set on foot by an Englishman, who succeeded in producing an inferior quality of blister steel, the result, doubtless, of a want of proper materials and facilities. In 1831 a second attempt was made by a firm in that city, which was measurably successful. They succeeded in manufacturing a quality of blister steel such as warranted renewed efforts, based upon the hope of ultimately producing a reliable article of tool steel. Two years later another firm in that city erected a converting furnace and embarked in the enterprise, pursuing it with varied success down to 1860. The efforts of this firm were confined to the manufacture of the lower grades of steel. The first batch of cast steel made in Pittsburgh, was made in 1841. The crucibles employed were made with American clay and were ill suited to the purposes required. The work was directly superintended by an experienced workman, and with the exception of the materials in the pots, the facilities furnished the workmen did not differ greatly from those employed at the present time. The uncertainty attending the crucibles was the chief causes of the abandonment of the enterprise. Other establishments followed in the business, their operation, however, extending over a brief period.

The reader should be informed that during the interval devoted to the enterprises above related, similar experiments were made in various parts of the country, which, with one or two notable exceptions, proved signal failures. Out of upwards of twenty well organized efforts on the part of manufactures, in various parts of the Union, looking to the establishment of the steel trade upon a reliable basis—efforts extending over a period of twenty-eight years—but five or six were in any degree successful, although in several instances all that capital could command was at their disposal.

Even as late as 1860 the census shows that there were only seventeen establishments engaged in the manufacture of steel in the United States, of which six were located in Pittsburg.

The gigantic strides made in the manufacture of American steel, may be said to date from 1850-60, experience having demonstrated the fact that the fault was in the *method* and not in the *native ore*. Experiments were made which have resulted successfully in almost every instance. The records of scientific and other learned bodies from 1855 to 1860 are full of new processes discovered by experimenters in the manufacture of steel. That, however, which seemed to claim the most attention from practical iron men was the mode suggested by Bessemer in a paper read by him before the British association in 1856. His plan of producing steel by extracting carbon, was by blowing air through melted pig iron. The carbon and silicon are readily burned out, and a considerable quantity of iron is also oxidized, as is the case in every process in which pig iron is converted into wrought iron. What could at first sight appear easier than blowing air through melted iron? An idea is one thing and its realization in practice is another. Bessemer had to contend with many practical difficulties, and is entitled to great credit for the ingenuity and perseverance which he displayed in surmounting them. His remarkable process has affected a perfect revolution in the manufacture of steel. As a spectacle there is nothing so startling and, in our view, so magnificent in the whole range of metallurgy. The melted pig iron is allowed to flow from an adjoining cupola furnace into the converting vessel, which is a circular vessel of iron coated internally with a refractory lining of silica. Several jets of air are then blown in at the bottom, and bubble up through the hot iron. For a time all goes on quietly, but the temperature gradually increases, and at length a volcanic eruption in miniature suddenly occurs, melted scoria being projected on all sides with considerable violence, and which if allowed to escape would inflict serious mischief on any unhappy by-standers. But soon all is again tranquil, and the chamber contains malleable iron in a state of perfect liquidity. This may be tapped with moulds. Steel is made by introducing into the melted iron in the converting vessel a given quantity of spathic iron ore (carbonate of iron) containing a known percentage of carbon. The iron ore dissolves in the iron like sugar in water, rendering the metal more fusible and very liquid. The Bessemer process is now carried on extensively in Europe, in the United States and in India. It was introduced in this county in 1859, and at this date there are quite a number of establishments in the United States devoted exclusively to the manufacture of steel by this process, the largest of which is the Pennsylvania steel works located about one mile east of our city. They consist of two large Bessemer buildings, a very large rolling and hammer mill, a

foundry, a machine shop, a frog shop, a large new double furnace and various other buildings. The company own ninety acres of land, over a great portion of which the buildings already erected extend, and the balance of which is strictly reserved for other buildings, railroad sidings, &c. All the principal buildings are erected in the most costly and durable manner, due regard being paid to elaborateness of finish. The Bessemer buildings are of blue limestone block pointed, giving them a very handsome exterior, and this together with the great number of windows and their cappings, produce a very pleasing effect. We venture to say that no where are there finer and more substantial manufacturing buildings than those belonging to this company.

The same attention to solidity, durability and beauty is to be found everywhere, whether you look at the superb engine with its magnificent mountings and deep granite bed of solid masonry; the variety and number of steam lifting pumps, by which the arms of heavy steel shafted cranes are lowered and elevated: on the huge egg-shaped vessels which act as receptacles for the melted composition, which is steel in a crude state; or, in the rolling mill, where the appliances are of the latest pattern, the best material and of the most costly description; or in the hammer mill, where twelve and eight ton hammers fall by a skillful arrangement from a height of twenty feet or more upon the steel blooms below. The walls of the buildings, the foundations of the engines, the heaviness of the machinery, the immense weight of the great steel hammers, all show the presence of mechanical skill and scientific attainments in those who superintended the erection of them, and also prove the investment by the company of money without regard to expenditure as to the present, but with a full view of durability and cheapness in the end.

The vessels used for converting iron into steel in the Bessemer department of the works, were lined on the tenth of October, 1873, and were used until the 19th of September, 1874.

During this time 5,276 "blows" were made, producing 26,380 tons gross of steel ingots. This product is by far the largest ever made with one lining, we believe, at any similar works in this country or Europe.

On one day recently their production of steel rails was 140 tons gross. These were turned out from one mill by one set of rolls in thirteen hours and twenty minutes, being at the rate of one ton every five and five-seventh minutes, and of this quantity only four rails inspected as No. 2. The rails were of the seventy pound pattern, and were the last of the order for use in the Hoosac tunnel, Massachusetts. All but eleven were full thirty feet in length. To show the lively manner in which the men must have worked, we may state that the hammered "bloom" for each rail was passed through the rolls seventeen times, each "pass" involving two handlings.

The average production of steel is about 12,000 pounds at each heat, and during the twenty-four hours there are run twenty-five heats: thus allowing for all waste, the daily production of steel rails is about 120 tons, beside a large amount of railroad frogs and crossings.

The amount of coal consumed in the forge and rail mill is 2,000 tons per month, and in the Bessemer plants about 1,800 tons per month.

These figures, allowing 312 working days in the year, give us the annual consumption and products of the works as follows:

## CONSUMPTION.

	Tons.
Pig iron . . . . .	374,040
Coal . . . . .	45,000

## PRODUCTS.

Steel rails . . . . .	312,000
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When it is remembered that these results are effected during a season of great depression, in every branch of industry, some idea may be formed of the capacity of these works in a season of general business prosperity.

When in full operation the establishment employs about 600 workmen, the most of whom reside in Baldwin—a village originated by the works, and growing so rapidly as to be already seeking corporate honors.

The works are under the general management of Major Bent, who has under him a corps of scientific gentlemen fully conversant with the requirements of their respective positions.

It is almost unnecessary to add that the most admirable order, system and guidance are to be found in every department of the Pennsylvania steel works, which exhibit in a remarkable manner the enterprise, energy, perseverance and inventive resources of the company.

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### THE WORKS OF THE DUNCANNON IRON COMPANY.

The land on which the Duncannon iron works now stand, was purchased in the autumn of the year 1836, by William Logan Fisher, of Philadelphia, and Charles W. Morgan, of New Bedford, Massachusetts, associated together under the firm name of Fisher & Morgan. A short sketch of the original owners of the Duncannon iron works will not be out of place.

William Logan Fisher, the senior partner, was born in Philadelphia, in the year 1781, and received his early education in that city; at fourteen years of age he removed to New Bedford, where he was apprenticed to William Rotch, Jr., a shipping merchant of that flourishing New England

town; after serving his apprenticeship he entered into business for his own account and did not finally leave New Bedford until the year 1809, when he removed to Philadelphia, to engage in the manufacture of woolen goods and the printing of calicoes; these two branches of industry he devoted himself to for several years, the former at Germantown, the latter at Frankford; both these small towns are now included in the consolidated city of Philadelphia. Although Mr. Fisher actively engaged in business affairs from early life until his death in the year 1862, he, nevertheless, found time for literary labors, and wrote several books and pamphlets on metaphysical and religious subjects, the most important being the history of the Sabbath. This work gave rise to much discussion in the newspapers and periodicals of the day, as it was decidedly hostile to sabbatarianism, then far more prevalent than at present. His religious views were those of the Society of Friends, yet he was far more liberal than a majority of that society. He frequently "bore testimony" on the subject of the hireling ministry, although his hostility was directed against the principle, and did not affect his feeling toward individuals.

Charles W. Morgan was born in Philadelphia but, like Mr. Fisher, removed to New Bedford in early life. He never took an active part in the management of the Duncannon works and spent little of his time at Duncannon. He had large business interests at New Bedford, which did not admit of long visits to his property here. Mr. Morgan was a man of high character and business standing, and is remembered with affection by those of the employees of the iron works who were here under the old organization.

In the year 1836 the iron business of the United States was in its infancy, the establishments throughout the State were of a primitive character, and the Duncannon forge was no exception to the general rule—Duncan and Mahon were sold out by the sheriff, sharing the fate of many iron manufacturers of that day. Mr. Frederick Watts, of Carlisle, was the purchaser, but soon grew tired of the investment and sold out to the gentlemen briefly sketched above.

The property originally contained about 7,000 acres of land supposed to be rich in iron ore and coal; but to this day neither mineral has been found in veins large enough to repay the worker. At various dates the acreage has been decreased by sale until at present only about 1,000 acres remain.

The forge, as at first carried on by Fisher and Morgan, consisted of four forge fires and one chafery; the product was large blooms for boiler plate and bar iron. Robert S. King was the first manager and had charge of the forge as well as the coaling, while William Lindley exercised a general supervision of the affairs of the firm outside of these branches. Mr. King's duties were much the same as those of a forge manager at the present day;

Mr. Lindley was engaged in obtaining supplies for the hands, no easy occupation in those early days.

From the beginning above described, the proprietors continued to enlarge and extend; the first work before them was the rebuilding of the dam on Sherman's creek, and the improvement of the forge; new water wheels were also put in. Thus the year 1837 was employed. In the autumn of that year, the firm, together with the whole business community, were overtaken by the financial panic, which completely prostrated large numbers of industrial establishments throughout the country. Large fortunes were swept away in a day, and we have an example of the effects of the commercial disturbance that ensued in our own experience of the general depression now raging, as a result of the panic of September last.

Many of our old residents now living, will easily recall the events of the crisis of 1837 in this community. The whole country was deluged with "shipplasters," and they were as plentiful here as elsewhere; some were issued by a resident of Duncan's Island payable in *suckers*: an extraordinary basis for a paper currency; *a basis*, however, it certainly was, and the lesson should not be forgotten now, when we willingly take a currency based upon nothing whatever, in exchange for our commodities. Should a day of universal disgust come upon us, we may look back with regret to the days of the suckers on the wharf.

Fisher & Morgan were not embarrassed by the ruin around them, but as soon as prudence permitted, continued to pursue the course they had mapped out. In the year 1838, the boiler plate mill was built, but never was successful, as the plate made was of inferior quality, and orders were scarce in consequence. The boiler plate trade failing, the mill was used for rolling nail plate, in the same manner now customary in all plate mills. Before this time, long plates were rolled similar to what is known as band iron, and the nails were cut *across* the grain, so that the best quality of iron was necessarily required. It is worthy of note that the present mode of rolling plates was first introduced at Duncannon, though little or no success attended the effort, and it was soon abandoned. The plate thus rolled was carried to New Cumberland, where it was made into nails by the Woodwards, one of whom (Roswell) superintended the building of the nail factory there a short time after.

In the year 1839, the Merchant mill was put in, and is substantially the same mill to this day: the upper layer of timbers in the foundation was taken out a few days ago, but the bottom was found in a good state of preservation. As soon as the Bar or Merchant mill was in running order, the old plan of rolling nail plate was resumed, and Duncannon loses its claim to precedence in the new process.

Bar iron also was added to the products of the works, and as the new mill was one of the best in the State, the firm gained a profitable trade.

The nail factory was built in 1840-41. The original factory contained but twenty machines.

Now, it has increased to fifty-four with the capacity of twenty-five hundred kegs per week, or one hundred and twenty-five thousand per annum.

The rolling mill includes the puddling and finishing departments.

The former contains sixteen furnaces built after improved patterns covered by letters patent. Over eight of these furnaces boilers are placed which supply the steam to drive the one hundred horse power engine, which works the mill, the shears and coffee mill squeezer. The puddling department turns out from 160 to 190 tons per week when in full operation, supplying the two merchant mills and nail sheet mill with puddle bars. The quality of the nails and bars depends upon the character of the pig iron used and upon the workmanship, but especially upon the puddling or converting process. This is the foundation of all the finished work. The greatest vigilance is therefore directed to this important feature. The best raw material is used. None but the best puddlers or boilers are employed; the celebrated Lake Champlain back oxyde is used for lining the furnaces, and the proprietors have constantly in view the making the best puddle bar, as upon this basis rests the high reputation which their bars and nails have secured.

The Merchant mill department contains three furnaces over each of which two boilers are placed to supply steam.

Two furnaces heat for the sixteen-inch train, driven by an L. P. Morris & Co., upright engine. One furnace supplies the eight-inch train.

The sixteen-inch train rolls all sizes from six inches to one. The eight all small sizes.

The nail plate train is under the same roof as the Merchant mill, and is run by the same engine. It supplies the nail factory.

A foundry is connected with the works in which all castings are made, thus economising time and material.

The blast furnace was built in 1853, and was at the time of its erection one of the largest on the Susquehanna.

The company own extensive ore lands and mines which are located at convenient distances from the furnace.

The blowing engine is horizontal, driving an upright blowing tub. The hot ovens are after the Player pattern. The capacity of the furnace is 7,000 tons per annum.

The village of Duncannon is beautifully situated near the junction of the Juniata with the Susquehanna. Nestling at the base of Cove mountain it has been the theme of the poet and adorned the canvas of one of Philadel-

phia's most gifted landscape painters. It has about 2,000 inhabitants, who depend upon the works or the workmen for their support.

In 1861 the cry to arms was answered by one hundred brave hearts. They joined the celebrated Bucktail regiment, which recorded a high name for itself on many a bloody field along with the Pennsylvania Reserves. Each successive call from Uncle Sam for six hundred thousand more, took many a sturdy workman from his fire and his fireside to meet a fire of a sterner kind, until the town and its immediate vicinity were credited with five hundred gallant volunteers. The iron men acquitted themselves nobly in camp, field and battle. Many never returned to their mountain home, but comrades, wives and mothers mourn a hero's sacrifice on a country's altar.

It is worthy of note that Fisher, Morgan & Co., were the first to use anthracite pig iron, made by Samuel Wood at Avaring creek furnace.

William Wister, of Germantown, is president of the company.

John Wister, Jr., is treasurer and general manager.

Wm. E. S. Baker, of Philadelphia, assistant treasurer and Secretary.

Here it may be added that all the stock of the company is in the hands of the heirs of the original owners.

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### THE LOCHIEL IRON WORKS.

The works, motive power and machinery owned and employed by the Lochiel iron company in the prosecution of its business, are situated on the fine table land between the Pennsylvania railroad and Pennsylvania canal, at the mouth of Paxton creek, about one mile and a half south-east of the court house, and are comprised in about one hundred buildings, which, if compactly arranged in a square, would cover an area of about twelve acres.

Of this number several are large and solidly constructed edifices. The rolling mill is 350x320 feet and contains twenty single puddling and eight heating furnaces for rails, two furnaces for breaking down, two bar mills, one eighteen-inch puddle train, one eighteen-inch rail train, one eighteen-inch, seven-inch, and one sixteen-inch bar mill. The machine shop is 100 by 50 feet; the furnace we have already described. The remaining buildings are adapted to the purposes of blacksmithing, the storage of raw material, counting offices, the engines, and to accommodate many other departments which of necessity are included in an establishment designed for such extensive manufacturing operations. The entire machinery in operation is of the most powerful, accurate and comprehensive description,

embracing every improvement in their line of manufacture that ingenuity and long experience have been able to devise. While much of this machinery has been built expressly for use in the Lochiel works by eastern makers, much also of the more exact, and a large proportion of the entire machinery now employed, has been constructed under immediate supervision in the machine shop of the company, which constitutes one of the regular departments of this establishment. The advantages accruing from a department of this kind are apparent and cannot be over-estimated, but its incorporation as a specific branch of the business is worthy of particular remark, as indicating an intention of making the same auxiliary in a very high degree to the development and introduction in this establishment of all mechanical improvements which may be yet possible, and tending to lessen the cost or improve the quality and appearance of a manufacture which has attained a remarkable standard of excellence in these respects. The puddling and heating furnaces of the works are regarded by iron men as models of perfection. They were designed and built by John F. Heatly, Esq., formerly of Pittsburg, a young gentleman of great inventive ability, who is permanently retained in the employ of the company, especially to superintend this branch of the business.

The building and most of the grounds of the company are illuminated at night with gas manufactured on the premises, and the entire works are supplied with water pumped by steam from the Susquehanna.

The products of the works are railroad, bar iron and fish plates, all of which hold a high rank in the markets and meet with ready sale.

The capacity of the works are about 2,000 tons of iron per month in the manufacture of which 2,500 tons of soft coal are used. This is exclusive of the consumption and products of the furnace belonging to the works, which we have previously enumerated.

The aggregate of the annual products and consumption of the works are as follows :

PRODUCTS.	
	Tons.
Railroad, bar iron and fish plates . . . . .	24,000
CONSUMPTION.	
Coal . . . . .	30,000

The works are owned by a joint stock company, of which A. J. Dull, Esq., is the general manager, secretary and treasurer.

## THE HARRISBURG FOUNDRY AND MACHINE WORKS.

The works of the Harrisburg foundry and machine company are located on a triangular tract of land, containing about twenty-one acres, fronting on or bisected by Market, Sixteenth, Seventeenth, Mulberry and Howard streets, the latter being the principal thoroughfare of approach.

The works were originally a branch of the Harrisburg car factory, but so rapid was the increase of their operations, that a separate organization was considered necessary to best promote the growing interests of both establishments, and accordingly the foundry and machine company went into operation as a distinct company, in January, 1872.

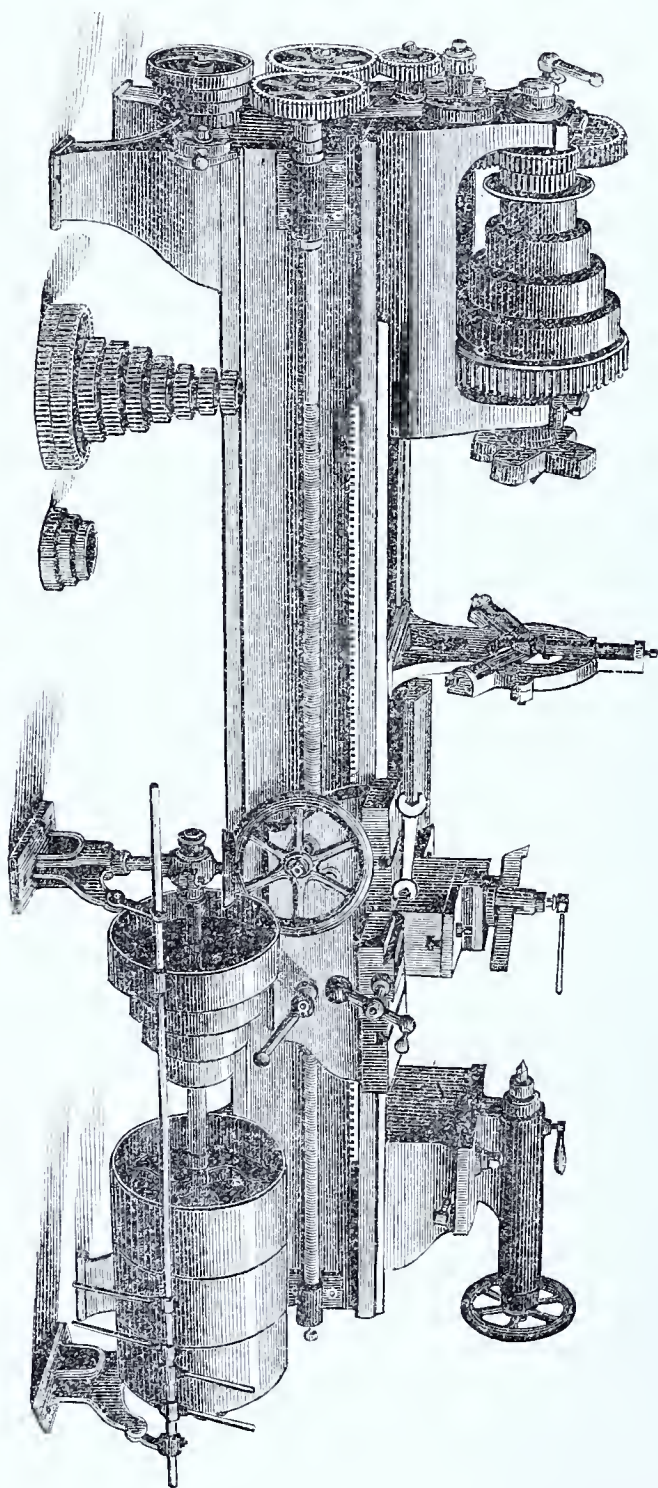
The works of the company are comprised in a series of buildings enclosing under roof more than 50,000 square feet of available flooring. Of this number, five are 60x200 feet, and one 50x350. They are all solidly constructed edifices, roofed with slate and most of them two-stories in height, besides having lofty and well lighted attics. These contain the machine shop, the foundry, the boiler shop, the tank shop, the finishing or setting up shop, the warehouse and counting rooms of the concern. The remaining buildings are substantial one-story structures, adopted to forging, the storage of raw material, and to accomodate many other departments, usually included in an establishment designed for such extensive manufacturing operations. All the buildings are connected with each other by rail-ways, which form a junction with a branch of the Philadelphia and Reading railroad.

The machinery of the works are of the most powerful and accurate character, embracing every improvement that ingenuity has been able to devise. Much the largest portion of this was manufactured in the machine shop of the company from standard patterns and specifications.

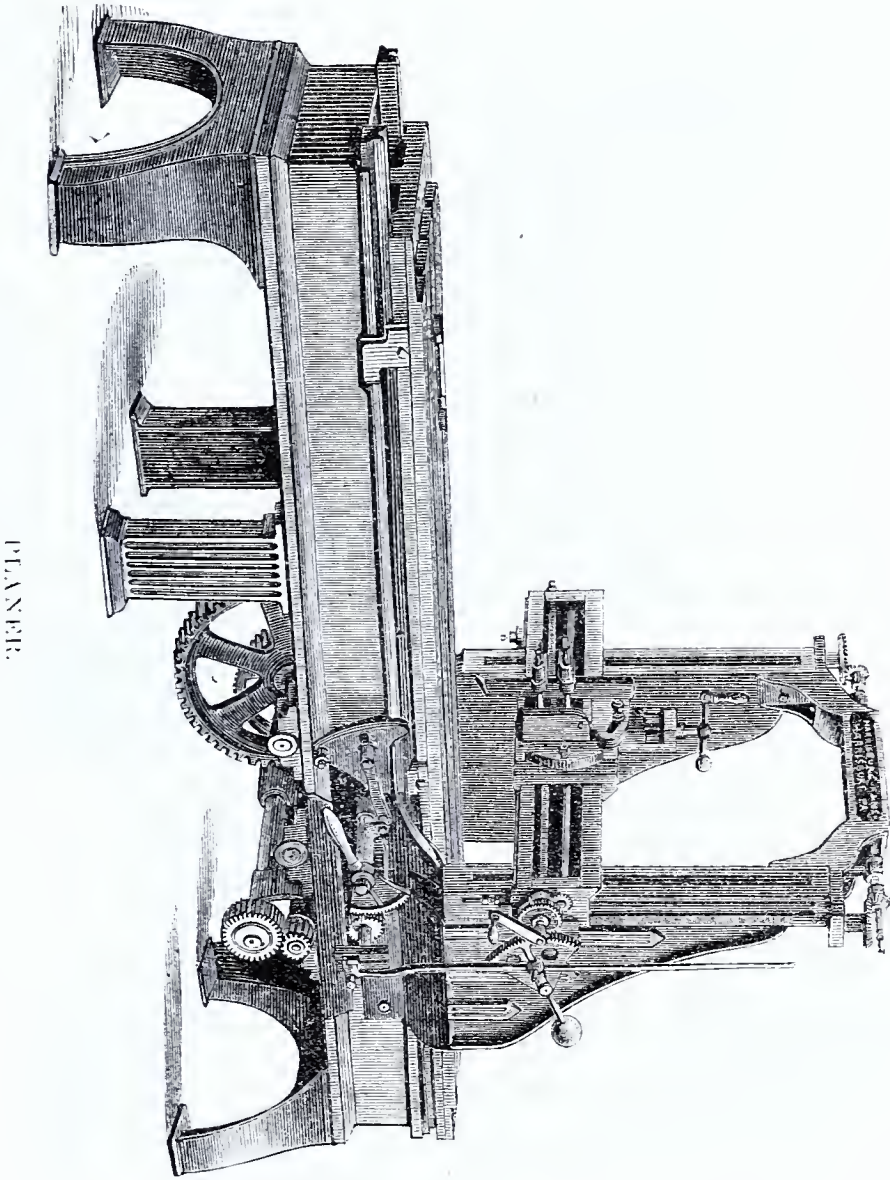
While the company have all the appliances for making heavy castings and machines for rolling mills and blast furnaces, compound pumping engines of any capacity for supplying towns and cities with water, steam engines and steam boilers, blast pipes, gas flues, air receivers, oil tanks, tank cars, wrought iron draft stacks, stand pipes, &c., they give particular attention to the manufacture of certain specialties in machinists' tools and machinery generally for the working of iron. A description of some of these will show the character of the modern appliances for this purpose.

First, we will mention an engine lathe, of which they produce nine different styles, from a twelve inch swing, six feet bed, turning three feet nine inches in length, to a fifty inch swing, twenty feet bed, turning thirteen feet six inches in length. They also produce a twenty-six inch roll lathe, sixteen feet long, turning ten feet four inches in length, with thirty inches swing over saddle and thirty-six inches over shears.

ENGINE LATHE.

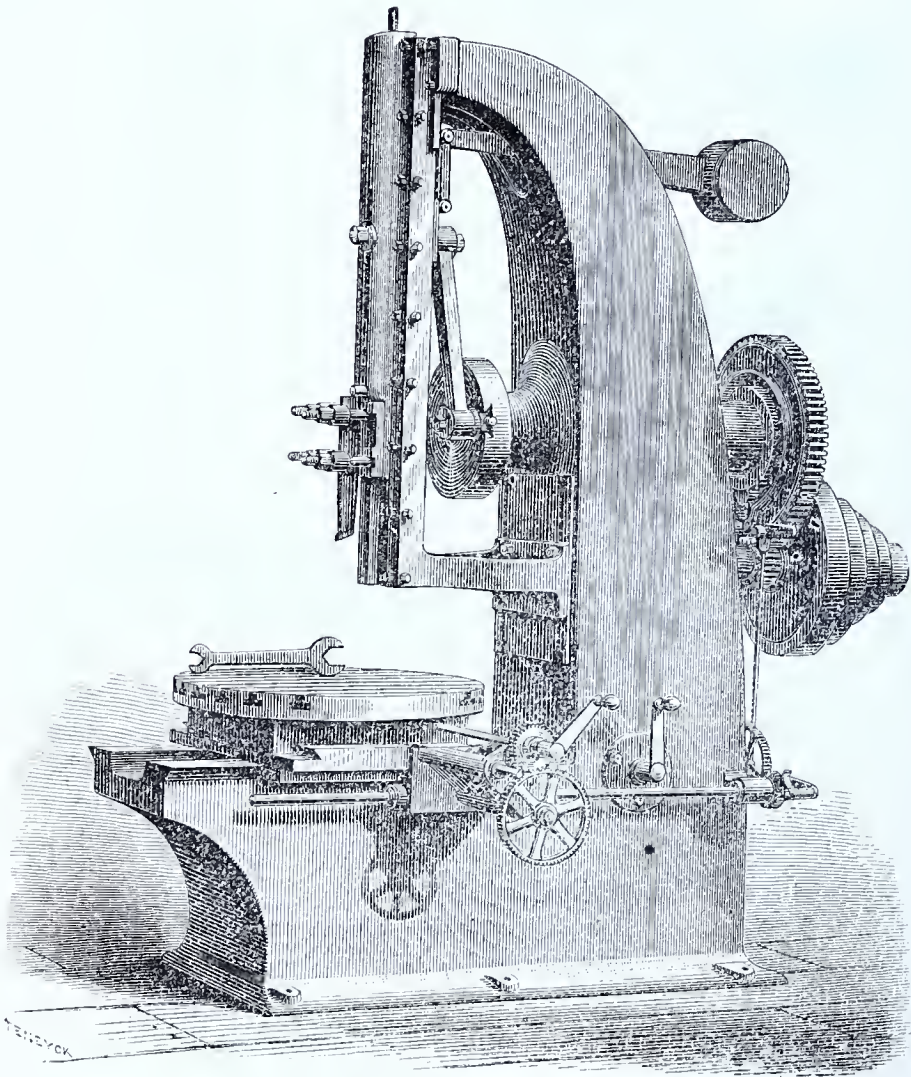


Another machine is a planer, of which three styles are made, planing from twenty inches to thirty-six inches square, and any desired length. These are made extra heavy, powerfully geared, with positive feed, lateral, vertical and angular motion. They are well adapted to heavy work, and so accurately adjusted as to do the most delicate work.



A pillar shaper is another specialty of the company's manufacture. The frame of this machine is made in the form of a square pillar, with a very broad base so as to give it firmness when in operation. It has a superior revolving chuck for holding work, and low pulleys with four changes of speed.

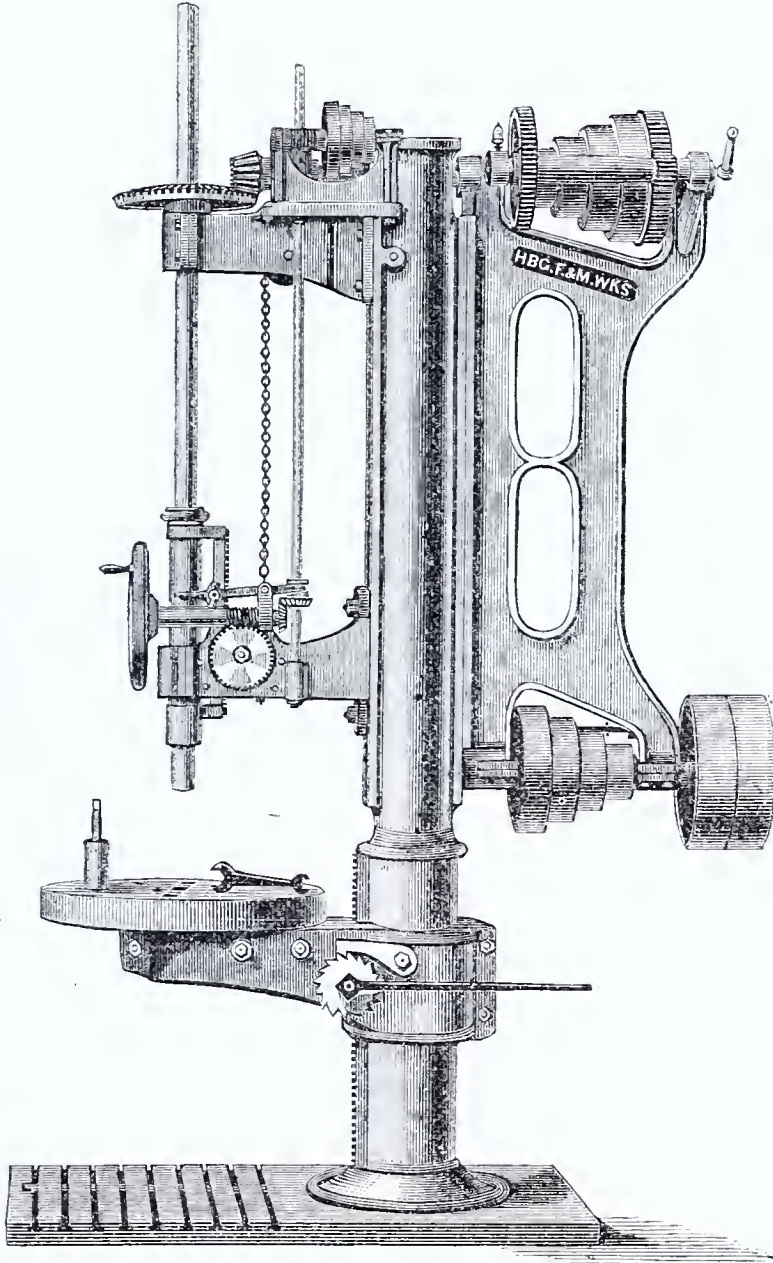
Another specialty is a shaping machine. The cutting bar of this tool has a movement of twelve inches, and is driven by a variable crank, with quick return motion. The bed on which the saddle moves is five feet long, and so constructed that it will plane the full length of bed, five feet; it has five changes on the cone pulley, and is driven by a two and a quarter inch belt. The saddle plate, carrying cutting bar and crank motion is traversed by a screw through the centre of the machine with self-feed in either direction; it also has two revolving steel mandrils with cones for circular work, and self-operating feed.



HEAVY SLOTTING MACHINE.

The company produce two different size slotting machines, one with thirty inch table, eight inch stroke, and the other with a forty-eight inch table and fourteen inch stroke; the strokes of both variable at pleasure. The frame of this latter machine is a single casting weighing four tons.

Another ingenious machine manufactured by the company is a wheel boring machine, especially adapted for car builders' use. It will bore wheels thirty-six inches in diameter. The company, if necessary, furnish with this machine, a very superior hydraulic wheel press.



UPRIGHT DRILL.

In the way of drills, the company produce three different styles, all upright. The largest of these has a forty-eight inch swing and will feed twelve inches without adjusting bracket. It has a round table revolving on the column of the drill, also base plate 3x5 feet planed and slotted for

securing work to be drilled. It is back geared, has large cone-pulleys with four changes of speed, using three inch belt. It also has a superior self-feed, and in short is not excelled by any drill made. When used as a boring machine it will bore a hole ten inches in diameter, straight and smooth.

An important specialty of the works is the manufacture of a steam engine with patent balanced slide valve. This engine is from entirely new patterns and exhibits thoughtful design, ingenious contrivance, refined skill and admirable execution. It was designed with a view to give the greatest amount of power with a given diameter of cylinder and length of stroke. The castings are very heavy and of such form as to insure the greatest strength. The steam piston is fitted with self-adjusting steam packing and works with the least possible friction and wear in the cylinder. The valve motion is a model of simplicity and strength. These engines are especially adapted to furnishing a direct acting high speed motive power, and as such have no superiors in the market. They are furnished of all sizes from ten to three hundred horse power.

The company also manufacture improved foundry cupolas with a capacity of from one to fifteen tons per cast, improved balanced foundry ladle with the capacity of from one to eight tons. Bolt cutters propelled by steam and hand power, grind-stone boxes, drilling and boring machines, patent parallel machine vices, improved globe stop valves, improved lever safety valves, Reisinger's patent self-adjusting spring packing, and in fine any and every kind of iron machinery.

The drawings and patterns of the machinery alone made by the company are valued at \$20,000.

The company were the manufacturers of the mammoth compound pumping engine at the Harrisburg water works. The bed plates of one of these engines is a casting six feet wide, thirty-two feet in length and weighs 22,000 pounds—it was cast in one piece and proved to be a perfect job.

Other large castings belonging to this engine weigh from two to six tons each. The heavy forging (and particularly the connecting rods and cross head) are finely proportioned, and polished till they reflect objects like a mirror. From a careful examination of the drawings and plans we are of the opinion that all portions of the work are actually made stronger and more durable than the drawings or specifications required—with the intention evidently to make this especial contract entirely satisfactory—a fact that will establish the reputation of the builders far and wide. One excellent feature in these engines is the introduction of the adjustable cut-off valve gear, by which the point of "cutting off" steam is varied from a few inches to the full stroke of the engines, at the pleasure or will of the engineer, without stopping the engines. This, in itself, is a very valuable

and important feature, and secures to perfection all the economical results to be derived from working steam expansively. The gross weight of the engine referred to is about eighty tons. The six improved tubular boilers constructed also by the company are excellent specimens of good workmanship. They are made of the best hammered charcoal iron, of extra thickness and strength, and will be furnished with an independent feed pump, water gauges, steam damper, &c.

The company were also the manufacturers and builders of the stand pipe for the new city water-works. This is 210 feet high, five feet in diameter, and weighs 50,000 pounds. It was raised to its present position in eight working days by a very novel and ingenious application of hydraulic power so nicely adjusted that a boy could have effected the elevating operation.

The process of casting, forging, planing, turning, drilling and polishing the various pieces of machinery is done with the precision of clock work. None but skilled mechanics are employed in the various departments of these extensive works, and we were impressed with the fact that the Harrisburg foundry and machine company is abundantly able and fully prepared to compete with the largest establishments in the United States in the construction of all their varied manufactures, from the most delicately finished machinist's tool to a monster steam engine.

The officers of the company are, W. T. Hildrup, Esq., president; Samuel Fisk, Esq., general manager and treasurer, and F. J. Meredith, Esq., secretary. Much of the success of this extensive establishment is due to the experience and energy of the general manager, Mr. Fisk, who is perfectly familiar with all the minutest details of the business.

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### THE HARRISBURG BOILER AND TANK WORKS.

The history of the steam engine is a record of the slow steps by which it has been perfected, and the opposition by which the industrial conservatism of the times and the prejudices of vested rights in certain methods of manufacture have constantly opposed the acceptance of every suggested improvement; and is in a smaller degree a counterpart of the larger history of the world's progress. With the first machines for utilizing the energy of steam the appliances were of the crudest description. Little or no attention was given to economics, and perhaps even less to symmetry of design, which now are the subjects to which the most study is given. There was not then the necessity that there is now for such study, nor was there the knowledge in the world to make it. Now, however, that modern industry depends chiefly upon steam for the force it needs, the attention of builders of steam engines has been turned chiefly to perfecting the utiliza-

tion of steam in order to satisfy the inexorable demands for economy, necessitated by the greater activity of the industrial life of to-day. In this course of improvement there have been various styles of engines produced, varying as greatly in their merits as their method of construction differed. But it has been only by such practical trials that the knowledge has been gained by which a scientific examination of the relative value of engines of different models could be made, and that a scientific conception of the steam engine itself has been arrived at.

The chief points in which the utilization of steam consists are evidently in the expense of the fuel necessary in its generation, that is, in the construction of the boiler. This likewise has been the subject of various improvements, so as to combine all the correct principles of construction and operation which science and experience have decided are essential to the highest efficiency, economy and safety.

The manufacture of boilers in this country constitutes a very large and most important business interest, involving an immense amount of capital and employing a vast number of skilled mechanics and laborers. But a boiler is an article which requires far more science and skill in its manufacture than not only the cursory thinker, but even the actual observer of the process of its manufacture would be apt to consider; so much depends upon the character of the iron, the regularity of the curves of the plates, the fitting of the joints, and many manipulations which it undergoes in its various phases from the crude elements until it is pronounced finished. Therefore the merit of various boilers of different makers, though made from the same kind of material, from the very same manufacturers of these even is as varied in degree as the makers of the implement are different in person. It is a matter of no little importance, therefore, that the person in want of a steam boiler should possess himself of the best. All other things being equal, it is usually safe to say that the wares of those who have, against all obstacles, and commencing with limited means worked out for their productions a large sale, or a wide spread fame are the most confidently to be trusted; for in such case the valuable character of the wares themselves accomplish the success of the makers.

There are numerous manufactories of steam boilers in this country, not a few of whom do excellent work, but it would be almost impossible, if not quite so, to exercise more care and study in their manufacture than are observed at the Harrisburg boiler and tank works, owned by Robert Tippet.

This excellent establishment is located at the junction of the Pennsylvania railroad and Race street, within an area of about three and a-half acres of ground. The main building is a substantial brick structure 250x60 feet, with a wing 175x40 feet, both having a studied adaptation to their special purposes. The main department is, of course, the boiler room, which looks

like an almost interminable industrial hall, and is replete with elaborate and effective machinery, the most of which is the invention of Mr. Tippet himself, the result of a careful and painstaking experience of forty years in the boiler trade. The first of these is a bending machine which is designed for bending boiler plate iron, and is a great improvement upon the method formerly in use. It is constructed in such form of frame work and gears as to mount three rolls in it, which can be adjusted to any size of sheet metal, and to flare the rolled sheet at any required angle. It can be propelled by either hand or other power.

The next apparatus invented by Mr. Tippet is a punching machine, intended to punch the holes through the boiler plates for the rivets. This is a very ingenious contrivance, and performs its work admirably.

Another invention of Mr. Tippet is a cutting or chipping machine, which is a noticeable triumph of constructive machinery, and gives the establishment great industrial advantages.

An interesting feature in this department is the method of economizing labor and time in the transportation of the raw material in its various stages of completion, as well as the finished boiler itself. This arrangement consists in a tramway running through the entire length of the room, along the side of which are placed the several machines used in preparing the iron for the boilers. By this means the rough iron is brought in at one end of the room on trucks, submitted to each machine, and by the time it arrives at the opposite end it is a finished boiler. This is then removed on the truck by the tramway back to where the iron first entered, and from thence, if for foreign shipment, to the siding on the railroad which runs directly in front of the establishment.

The basement story of the building is occupied by the boilers which run an engine of twenty-five horse power, store room and vaults, containing hundreds of tons of coal.

Throughout the entire establishment order reigns supreme. The exquisite judgment and skill with which means are adapted to ends we have already shown: and no one need wonder that from such a perfectly appointed establishment are turned out such perfectly appointed wares. Here is no mushroom growth; the establishment has developed by natural and perfectly healthy processes from a small sixty foot square structure, erected a dozen of years or so ago by Mr. Tippet, to its present imposing dimensions.

The products of the Harrisburg boiler works, whether boilers, tanks, stacks, &c., have found their way into almost every section of this as well as others States, and have given universal satisfaction. Altogether the establishment is a triumph of skill, patience and that fixed integrity in work which thinks somewhat of the work itself as well as of its pecuniary re-

wards, and is determined first to do the best work that can be done, and after that to care for the profits. Such ingenuity and integrity alone could suffice to establish a trade and reputation like that of the Harrisburg boiler and tank works, the key to which is that in the long run is sure to find recognition and general honor, which steadfastly refuses to follow the too common rule of putting the best on the outside, and being satisfied with what appears well enough to sell well.

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### THE FRANKLIN IRON WORKS.

As an intelligent writer has observed the progress of civilization may be said to be in iron; for iron is not only a column upon which civilization rests, but literally lies along the road, like rails, upon which it moves, and there can be nothing more pleasing to the student of art or the lover of humanity who is interested in the material elements, which comingled adds so much to human happiness, and without which misery alone would be the normal condition of the races, than the subject of iron in its million ramifications. Notwithstanding the customary classification, iron is the chief precious metal. A piece of iron worth but five dollars in the market in its simple state, may become, it is said, when combined with a proportion of carbon, varying from one-half to one and one-half per cent. as steel and wrought into balance springs for watches worth two hundred and fifty thousand dollars. By no process could five dollars worth of gold in the ingot be wrought up to such a value, especially for practical, mechanical or other possible purposes. Indeed, in the study of iron and its uses, along the line of history, the student finds much which is sublime as well as beautiful. With the very heart of the races is iron blent—in fact it courses in the life blood or spirit of the races as truly as it mingles, as the physiologists tell us, in the life blood of the individual man. In Genesis of the Hebraic Scriptures, which is the oldest of historical writings, we find even the “artificer of iron” was the noted character or genius of the time, and in the book of Deuteronomy of the same Scriptures we are told of “a land whose stones are iron.” So from the very beginning of historic times iron has been a precious metal indeed to man. Every particle of gold and silver might be destroyed and, except in a few chemical preparations useful in the fine arts, their absence would not be practically felt by the world. Even the world of beauty would not appreciatively lose its gems, for iron in these days can be wrought into as many beautiful shapes as gold and silver, and the pigments in the hands of the chemic-artist may be made to supply their fast colors or shades, while adding colors, too, as beautiful as their own and which they cannot be made to imitate.

It is useless to attempt to recite in detail the forms which iron takes, and the necessities which it supplies even in the basilar stratum of civilization. But there is another need of man than that which simply supplies the wants of the stomach and protects against cold or heat. The home of beauty is one of the chief elementary impulses to his progress; and iron as a substance out of which countless ornamental devices are wrought plays as large a part in the advancement of man's moral nature as it enacts in his physical preservation and well being, and is far more capable of serving the multitudinous purposes of artists than are the mis-called precious metals. Besides, iron is a cheaper substance than these, and in this respect more available for the purposes of beauty, administering to the delight of a vaster number of beholding eyes, adorning more households, more public buildings, parks, streets of cities, in brackets and balconies, and posts, and mouldings, and turrets, and statues, &c., &c., than could all the other "precious metals" combined, to say nothing of its thousand other uses.

In this country the use of iron for architectural and ornamental purposes is carried to a great extent. Immense capital is invested here and there in the manufacture of iron into house fronts and various ornamental work for the same, as well as for the fencing of public parks and cemeteries, and the work which emanates from American shops compares favorably with the very best of European manufacture, while it is given to the public at cheaper rates, thus carrying the comforts and solaces of a fine art into a large number of houses and homes which could not afford to enjoy them at the prices which ruled for the imported wares before American enterprise entered the field of iron ornamentation.

Among the leading manufactories of ornamental and architectural iron works in Pennsylvania is that of the Franklin iron works of this city, owned by W. W. Jennings who, as a manufacturer of many years standing, may be styled representative in his line. The extensive works of Mr. Jennings are located on Fourth, Short and South streets, and cover an area of ground 240x105 feet. The buildings, all of brick, embrace a foundry 76x45 feet with two cupolas, a machine shop 30x100 feet, finishing shop 30x100 feet, a blacksmith shop, building for patterns, and all the subsidiary premises necessary to a complete and fully furnished establishment. A visit to the works is well repaid by those curious to behold the great capabilities of iron for beautiful form, either for ornamental or architectural purposes. Mr. J. manufactures window lintles and sills, cast iron girders and beams, arch girders with tension rods, columns of every description, roof crestings, lamp posts, ventilators, stable fixtures, sashes, gutter spouts, tree boxes, flue rings, verandas, gates, window panels and window guards, gratings for platform and steps, iron settees and chairs, sky lights and floor

lights, capitals and bases for wood, stone, brick and iron columns, and iron columns of Doric, Ionic, Corinthian and tower of window orders. Patent illuminating tiles for side walks, areas, floors and roofs, iron cornices, (plain and enriched,) iron tiling and floors, hitching posts. In fact in cases of strict necessity the Franklin iron works could turn out for us a house all complete with walls, floors, doors, windows, roof, verandas and balconies, cornices, etc., and if we had a reasonable plot of ground about the building, they could likewise make fancy fences and gates, fountains, summer houses, vases, statuary, garden chairs and settees, everything in short about or connected with a building, which, with the necessary textile fabrics, would render it surprisingly near to complete readiness for its inmates.

Not the least important branch of the establishment is that of their design department, under the management of Thos. H. Behring, an artist believed to be second to none in the country. This department in a measure gives tone to the establishment, securing the perfection of beauty for its work—a thing essential to the success of the firm, however worthy for faithful and substantial work it might be.

In excellence of workmanship, flowing lines, graceful curves, and that “touch” of high art which cannot be told in the printed line, and which only the engraver’s art can fitly illustrate, Mr. Jennings has become, in the manufacture of ornamental iron work, equal to the best in the country. The iron railing and gateways for example around the capital grounds, the stair cases, galleries, cupboards and shelving in the public offices, the *couchant* lions in front of the City Bank, the drinking fountain in front of the court house, are models of grace, scope and proportion, while the many imposing store fronts in this city and other towns throughout the State are unexcelled for their beauty of design and finish.

It is not our purpose to note the *modus operandi* of founding. Suffice it to say that the Franklin iron works are complete in their several parts for the ends which each is designed to accomplish; and the success of the establishment is due chiefly to the ability with which it is managed by Mr. Jennings, who devotes his entire time to it, and to the high reputation he has always enjoyed for the probity of his dealings and the excellence of his products, it having been an invariable rule from the beginning that no goods of his should leave the establishment unless they were perfect of their kind.





W. & A. C. PIERCE

*The Harrisburg Car Works, Harrisburg, Pennsylvania.*

## THE RAILROAD CAR INTEREST.

## THE HARRISBURG CAR WORKS.

The extent of business transacted in providing the means of railroad transportation in this country is enormous. How enormous, it would take a long compilation of figures and much labor in statement and understanding to fully realize. There are over two thousand railroads in operation in the United States. Of these it is said the Pennsylvania railroad owns more than sixteen thousand cars, including all kind; other roads have between nine and ten thousand, and quite a number as many as five or six thousand. These have to be frequently renewed, for a car seldom lasts more than nine years on an average. New roads, also, are coming into operation at the rate of over two thousand miles a year, all requiring complete new outfits. Cars cost from \$500, which will buy a platform car, up to \$20,000, which is the cost of one of those gorgeous traveling hotels called "Palace cars." Probably the most extensive car manufactory in the United States is that which is located in this city.

The Harrisburg car manufacturing company was organized in 1853, and originally had for its stockholders Messrs. David Fleming, Wm. Colder, Jacob Haldeman, Sr., Elias E. Kinzer, Thomas H. Wilson, W. T. Hildrup, A. O. Hiester, William F. Murray and Isaac G. M'Kinley. It started with a capital stock of \$25,000, and with facilities to manufacture nine cars a week. The company then owned two and a half acres of ground where its present extensive works are located. When purchased the site consisted of a truck garden, and the surroundings gave very little promise of the busy population now inhabiting that portion of Harrisburg. The cars turned out then as compared with those manufactured at the works to-day were vastly inferior in finish and substantial construction, although they commanded almost as high a price. From year to year improvements have been made in the material used in manufacturing cars and the machinery necessary to its preparation, and the work now produced by the company is so near perfection that it seems almost impossible that a further improvement can be effected in car manufacture. The company has been very successful since its organization, passing through but one year (1865) in which the expenses exceeded the receipts.

On the afternoon of April 25, 1872, a fire broke out in one of the shops of the company, and so rapid was the progress of the flames that in an hour after the works were a complete wreck, involving a loss of over \$500,000. The numerous buildings were all razed to the ground, millions of feet of lumber destroyed and hundreds of tons of valuable machinery rendered worthless.

While the fire was yet smouldering among heaps of debris the work of renovation commenced. About three-fourths of the 700 men thrown out of service by the conflagration were either employed in removing the rubbish, reconstructing the shops or working in other establishments under control of the company. In the short space of three months the entire works were rebuilt on a far more substantial basis than originally. The convenience and quality of the framing and construction departments were greatly increased and improved, and where formerly ten cars could be manufactured daily fourteen can readily be turned out. The capacity of the foundry and machine department were also much enlarged.

In the year 1871 the business of the car manufacturing company amounted to \$1,250,000, which was (notwithstanding the loss of time, &c., occasioned by the fire) increased in 1872 to \$1,500,000. The panic of 1873 effected the car building business probably more than any other branch of industry in the country; and yet such was the demand for the manufactures of this company, that the business for the year footed up the enormous sum of upwards of \$2,000,000. The amount paid during 1873, in wages to the mechanics and laborers employed, amounted to upwards of \$350,000. The following is a list of the buildings of the company:

No. 1. Is a handsome brick building, two stories high; dimensions, 41 by 45 feet. The first floor is devoted exclusively to office purposes, and is divided into four compartments by massive walnut railings. The upper story is divided in four apartments, two for directors' meeting-rooms; one for drafting, and one for general purposes. The entire building is handsomely furnished, and is a model of comfort and convenience. The office is supplied with a fire-proof consisting of an inside fire-brick wall nine inches thick, and an outside wall of ordinary brick of the same dimensions, the two separated by a three-inch air space. The inside measurement is nine and a half feet by seven and a half. The vaults are two in number, one on the first floor and the other on the second. The fire-proof is constructed on such a basis that the contents of the vaults are entirely safe from destruction even if the office should be consumed by fire, as the heat could not be of sufficient intensity to penetrate the two formidable walls with any show of effecting damage.

No. 2. This is a two-story brick warehouse 26x40 feet, (slate roof,) in which car springs, brasses and other light material used in the manufacture of cars are stored.

No. 3. The blacksmith shop is one-story in height, has a slate roof and is 45 feet wide and 201 long. In it are forty-six forges, the necessary blast for which is furnished by a large Demphel fan with a capacity of 2,000 revolutions per minute. The shop employs one hundred and twenty-five men.

No. 4. The machine shop is a two-story brick building (slate roof) 61x120 feet. On the first floor is the following machinery: Hydraulic wheel press

(150 tons pressure,) four thirty inch axle lathes (three fourteen feet long and one sixteen,) two wheel boring machines, one punching shears, one twenty inch lathe sixteen feet long and capable of swinging twenty inches, one horizontal boring machine, one fifty inch lathe twenty feet long, one thirty-two inch lathe sixteen feet long, one thirty-six inch lathe sixteen feet long, one twenty-five inch lathe twelve feet long, one twenty-five inch lathe fourteen feet long, one twenty inch lathe twelve feet long, one twenty inch lathe eight feet long, one planer sixty by seventy-two inches by thirty-six feet long, one planer twenty-eight by twelve, one forty-eight inch drill press, one thirty-six inch drill press, two thirty inch drill presses, one twenty-five inch drill press, one two and a half inch bolt cutter, one double headed bolt cutter, one bolt pointer, one brass boring machine and two nut tappers. There are two sections of shafting on the first story—one ninety-four feet long and the other eighty-three. The number of pulleys on the main shafting is forty—one seven foot, five four foot and the remainder from six inch to thirty-six inch. On the second story is the following machinery: Five sixteen inch lathes eight feet long, one twenty inch lathe eight feet long, one truck lathe eight feet long, two twenty inch planes six foot bed, one hoisting machine, two twelve inch lathes six feet long, one plank planer, one billing machine, one centering machine, four inch drill presses, one two and a half inch bolt cutter, nine one and a quarter inch bolt cutters, eight nut tappers and two ton chain, block and fall. The machinery is run by a line of shafting eighty feet long and consisting of two four foot pulleys, two three foot pulleys and fifty pulleys from six to twenty-four inch. On this story are also two large Sturdevant fans—Nos. 8 and 9. These fans are driven by four forty-eight inch pulleys. The larger makes 2,200 revolutions per minute and the smaller 2,000. The fans are used to furnish blast for four cupolas in the machine and wheel foundry. The air is carried through two conductors sixteen and twenty inches in diameter respectively. One of the conductors is nearly three hundred feet long, and yet the blast furnished to the cupolas could not be improved. The conductors are secured between the machine shop and foundries by a formidable network of iron. The full complement of workmen is one hundred.

Nos. 5 and 5½. The engine and boiler house is a one-story brick building, tin roof, 40x80 feet. There are two engines—one a 125-horse power and one 50-horse. The former is used in driving the machinery in the machine shop, and the latter performs a similar service for the framing department. A belt revolves around the fly-wheel of the larger engine and main pulley two feet wide and eighty-seven feet eight inches long. The cost of the belt was \$657. The 50-horse power engine has a belt seventy-eight feet nine inches long and eighteen inches wide.

No. 6. This is a two-story brick building attached to the foundry. It has a slate roof and is used for a foundry office and store room.

No. 7. The foundry is a one-story brick building with a slate roof. The building is divided into three departments—machine foundry, cleaning and wheel pit house and wheel foundry, besides having a core oven attached 12.6x18.6 feet. The entire building is 220 feet in length. In the machine foundry (62x100 feet) 50 moulders are employed. The smelting capacity of the establishment is 15 tons of castings per day. The iron is smelted in two modern cupolas made of strong tank iron. In addition to the large number of flasks of different sizes in the foundry is a pit 10 feet in depth, and of the same diameter. These circular cavities are intended to be used for the manufacture of rolling mill rolls. There is another smaller pit designed for the casting of pinions. The hoisting apparatus consists of two large cranes.

The cleaning and wheel pit house is 40x60 feet. Here are 45 pits, into each of which seven hot wheels are placed. The object of this is to render the iron less brittle. After the wheels have been subjected to the process of gradual cooling for three days they are removed and the rough surface is scraped off.

The wheel foundry is 60 feet wide and 80 long. Its daily capacity is 120 wheels, but at present not quite 100 are manufactured per day, by 12 moulders. The capacity before the enlargement of the foundry was 84. Most of the wheels cast are 33 inches in diameter and weigh 560 pounds. The smaller size weigh 440. The average consumption of iron daily is 30 tons when in full operation. There are six large cranes in the wheel foundry, which are so arranged that three can be used conjointly.

Of mechanics and laborers, about 140 are employed in the three departments of the foundry.

No. 8. The paint house is a one-story brick, with slate roof. Its dimensions are 20x30 feet.

No. 9. This is a frame building 28x30 feet, with tin roof. It is used to house the hose carriage belonging to the company, and as a meeting room for the firemen, a regularly organized fire company from among the employees.

No. 10. This is the number of the lower construction shop. Although not brick it is well secured against fire, the roof being slate, the ends iron clad, the walls lined with brick and the paint on the outside plentifully mixed with sand. The shop is 60 feet wide and 232 feet in length. Three railroad tracks run through the building. The capacity of the shop is seven eight-wheeled flat cars per day, employing 100 men.

No. 11. The framing shop, two-story brick with slate roof, is 60 feet wide and 200 feet long. In this department the lumber is prepared for the

construction shops. The following are the more important machines on the ground floor: One four-sided planer; one three-sided planer; one Daniels' planer thirty-five feet long; one Gray & Wood planer; two cross-cut circular and two rip saws; three mortising machines; three tenoning machines; three boring machines; one jig saw; one forming machine, and two hoisting machines.

The second floor is divided into three departments, viz: Pattern shop, carpenter shop and pattern room. The two former are supplied with the following machinery: One tenoning machine; one jig saw; one mortising machine; one cross-cut and one rip saw; one boring machine, and one turning lathe.

When run to its utmost capacity the framing shop employs a force of 100 men.

No. 12. This number represents another construction shop. It is a one-story brick building (slate roof) 60x200 feet. It is traversed by three railroad tracks, (one more than before the fire.) The daily capacity of the shop is seven flat cars, employing one hundred men.

No. 13. The repair shop is 38x101 feet. It is one story and has a slate roof. This building is used exclusively for repairing cars.

No. 14. The bolt shop (adjoining the blacksmith shop) is a one-story brick building (slate roof) 30x40 feet. In it is one small horizontal engine, fifteen-horse power, which drives three Lewis, Oliver & Phillips' bolt heading machines. The capacity of the latter is 6,000 bolts per day. In the bolt shop is also a pair of shears weighing three tons and capable of cutting iron six inches broad and an inch thick.

No. 15. This is the "rattler" house. It is two stories high and covered with a slate roof and has dimensions of 23x26 feet. In this building is a hollow machine of a cylindrical shape and made to slowly revolve. Within this cylinder the smaller castings mixed with cinder are placed with a view to remove the rough surface on them.

No. 16. This is a one-story brick building (slate roof) 14x26 feet, used for drying cores.

No. 17. The dry-house is of brick, one story, and covered with tin. Its dimensions are 20x26 feet. Here lumber is dried with steam.

No. 18. Building 12x16 feet, slate roof, used as an office and tool room for car inspectors.

No. 19. Is a one-story brick building, slate roof, 12x16 feet, used as a pump house containing therein one large sized Woodward pump, capable of throwing eight hundred gallons per minute, and is designed for use in case of fire. The pump is attached to the canal and is operated by steam from the main boilers, and per consequence is ready for action at a moment's notice.

## OTHER WORKS BELONGING TO THE CAR COMPANY.

In addition to the above buildings the Harrisburg car manufacturing company own a planing mill beyond the canal, between North and Boas streets, which employs about fifty men. Here lumber is prepared for box cars and flooring, &c. The saw mill on the western side of the canal, opposite Wister's furnace, is owned and controlled by the company. Here about eighty timber rafts are sawed annually—not one-fourth the amount of lumber used in the construction of cars at the company's works. The remainder is prepared in northern and western portions of the State. The saw mill employs about thirty men.

## LAND OWNED BY THE COMPANY.

The car company owns about twelve acres of ground—six at the car works, three at the planing mill and three at the saw mill.

## COMPANY'S OFFICERS.

The following are the officers of the company: President, William Colder; Superintendent, Secretary and Treasurer, W. T. Hildrup; Assistant Superintendent, Henry Handshaw; General Agent, John Murphy.

## GENERAL REMARKS.

The annual capacity of the Harrisburg car works is over four thousand eight wheeled flat cars. The substantial character of the cars and their cheapness have rendered these works very popular. For the New York Central railroad alone about five thousand cars were manufactured by the company during the past three years. The car company also does a large amount of work for the Pennsylvania, Northern Central and other railroads.

The average price of cars manufactured at the car works is \$650.

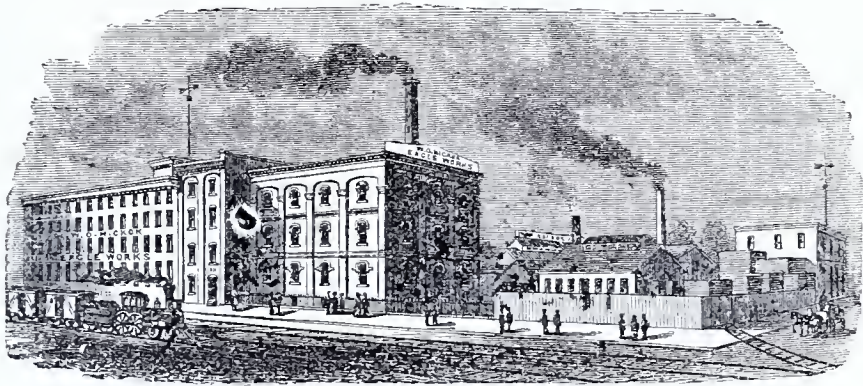
All the car shops are substantially constructed and possess every possible convenience. There is no lack of room for workmen, and light and ventilation are abundant.

The company constantly has on hand upwards of five hundred thousand feet of southern yellow pine, an article immeasurably superior in toughness and durableness to that obtained in Pennsylvania. In all the cars manufactured by the company this material is used.

In the manufacture of cars, when the works are run to their utmost capacity, a daily average of thirty-five thousand feet of lumber is consumed, twenty-five tons of wheel iron, fifteen tons of car iron, seven tons of axles and fifteen tons of common pig iron.

The principal stockholders of the company are W. T. Hildrup, (who owns the largest number of shares,) William Colder, J. R. Eby and David Fleming. The capital stock of the company is \$300,000.

## BOOK BINDERS' MACHINERY INTEREST



THE EAGLE WORKS.

As an intelligent cotemporary remarks, by the slow but sure process of generations, mankind has come to learn that our position in nature is dependent upon ourselves, and that only as we apply ourselves can we obtain control over the conditions in which we are placed. As a corollary of the advance which the philosophy of the present day has made over the metaphysical vagaries of the past, the industry of the present era has partaken of the same positive spirit, and by observation and experiment has obtained the ability to perform operations which formerly appeared out of the reach of human capacity. In hardly any other special branch of industry is this shown more thoroughly than in the manufacture of labor-saving machinery. The ingenuity of inventors has kept pace with the increasing requirements for new processes to meet the new demands, and the increasing necessity for economy of time in the greater activity of our industrial life. At the present day the application of machinery in the various trades has become almost universal, and the manufacture of such machinery a special branch of industry of great and growing importance.

Among the many establishments engaged in this speciality that of the Eagle works in this city may be properly selected as representative. Not only do these works hold this position from the importance of their business and their deserved reputation, but also from the fact that the proprietor has, by his various inventions, done much toward extending the application of machinery in various industrial pursuits. Being himself a practical mechanic, and having a knowledge, from experience, of what was needed in the application of machinery to more successful business operations, he has been able to devote his inventive talents to supplying the wants universally felt for improvements in certain directions, while the reception his inventions have met in almost every country of the inhabitable globe, is a proof of the general existence of the want they have supplied.

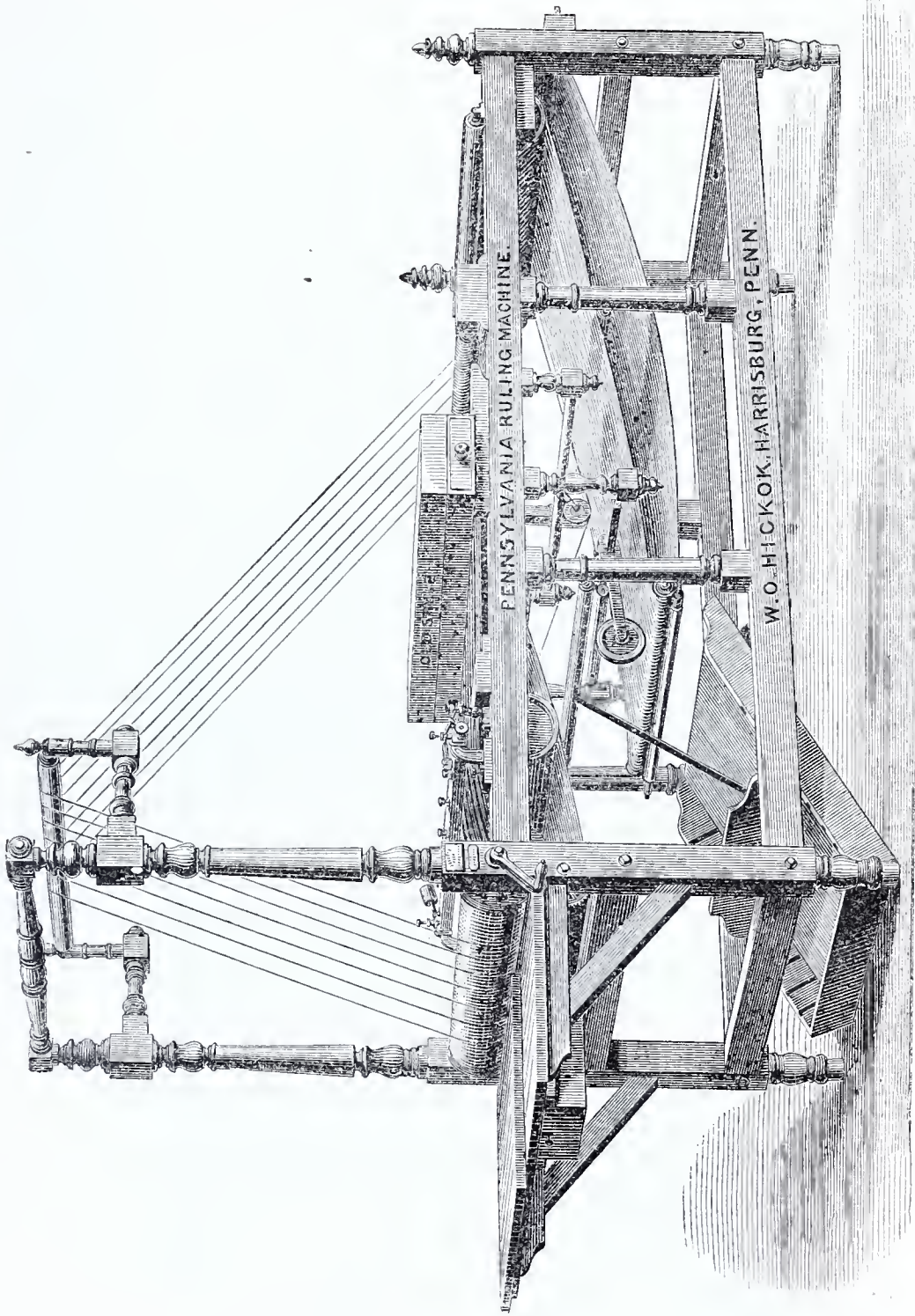
The Eagle Works are comprised in a series of buildings occupying considerably more than half the square lying between Canal, State and North streets and Poplar alley. The main structure fronts on Canal street, and is an imposing edifice of frame and brick, the former five stories and the latter four and three stories, though all are of uniform height, except the four story building, the roof of which is raised a few feet higher, with the evident view of toning the architectural effect of the entire pile by giving proper relief to the adjacent wings. The remaining buildings are a foundry, with two cupolas, whose joint capacity is twenty tons per heat, a drying house, smith shop and various other smaller structures which of necessity are included in an extensive manufacturing establishment.

It would take many pages to enumerate and describe the various articles manufactured at the Eagle works; but while they have all the appliances for making any and every kind of machinery, the business of the establishment is chiefly confined to the manufacture of certain specialities in book binders' machinery and cider and grape mills, which the proprietor controls as patentee.

It is doubtful if any article of American manufacture has a wider reputation and sale than the Harrisburg ruling machine. They have been sold and shipped to every civilized and half civilized country in the world. They rule the paper for the "ukase" of the autocrat of all the Russias; the "firman" of the Turkish Sultan and the Khedive of Egypt; the "edicts" of the Emperor of China; the "mandates" of the "Mikado" of Japan, and the "yahmids" of the Rajahs of India. In short in whatever clime the art of printing has penetrated, followed by its handmaid, bookbinding, there will be found a ruling machine bearing the trade mark of the Harrisburg Eagle works.

The Eagle works manufacture seven different varieties of ruling machines, which are enumerated as follows: The Harrisburg ruling machine, old and new style; the Pennsylvania ruling machine, old and new style; the New York ruling machine; the Boston ruling machine, and the Double ruling machine. The first four named range in price from \$206 to \$416, the Boston and New York machines from \$200 to \$350 and the Double machine from \$425 to \$465. The latter machine rules both sides of the paper at once and has become very popular in Europe.

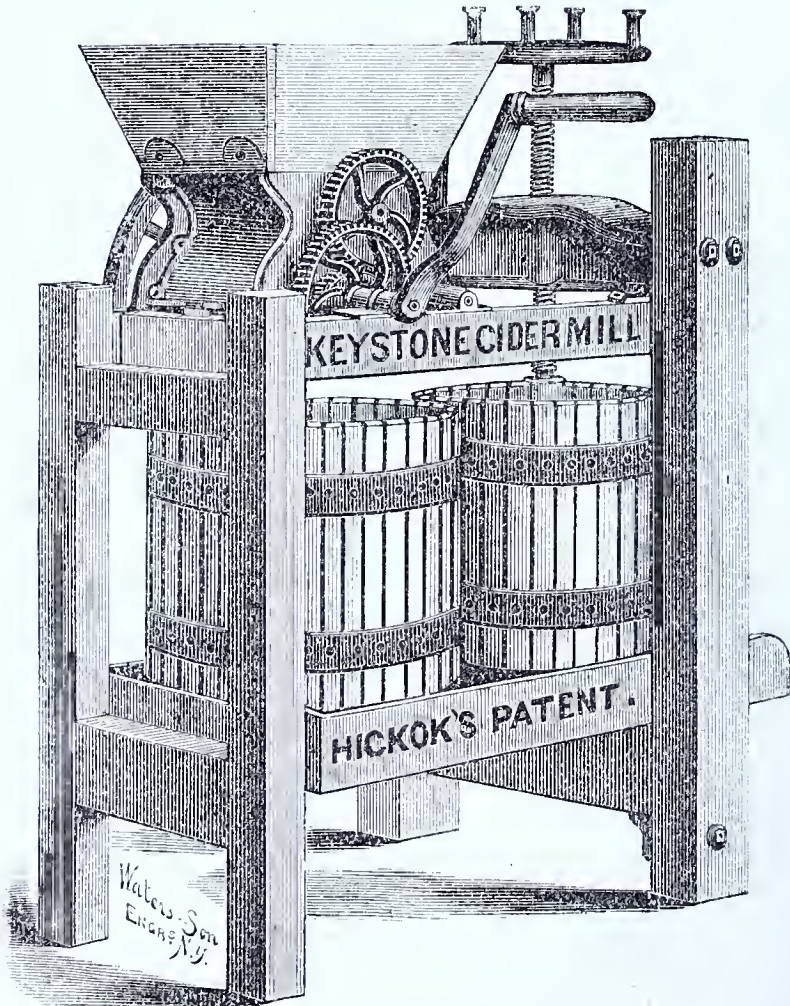
It might be proper to state that while these machines have different names, they are all the production of the inventive mind of the proprietor of the Eagle works. The same general principles are preserved in each, yet there are a number and in some instances material points of difference in their construction and attachments—the result of improvements made at various times by the proprietor during the thirty years the machines have been before the public. Perhaps the most important of these latter are the



PENNSYLVANIA RULING MACHINE.

patent strikers for down ruling, which rule from one to four heads with remarkable rapidity and in a very superior manner.

Among the other specialties of bookbinder's machinery manufactured by the Eagle works are improved sawing machines, embossing or seal presses, improved grinding machines, blank-book sewing benches for tape, parchment or printed work, improved stabbing machines, gauge table shears, backing machines, finishing presses, cutting boards, finisher's stands, gold cushions, pressing boards, gilding presses, plow and presses, forming irons, beating hammers, patent hand stamps for lettering indexes and paging books, standing presses, &c. In short there is no tool, implement or other requisite of a first-class book bindery that may not be found at the Eagle works; and so favorable and wide spread is their reputation for superior excellence, that, like the ruling machines, they find a market in every quarter of the globe.



KEYSTONE CIDER MILL.

Another important speciality of manufacture at the Eagle works is the "Hickok patent portable Keystone wine and cider mill." This is the pioneer of portable mills for grinding or pressing fruit, and notwithstanding it has produced a number of imitations, it still preserves the renown that distinguished its first reception by the public twenty years ago; and what renders this circumstance the more remarkable is the fact that within that time, very little improvements have been made in its machinery, so perfect was the apparatus from its first inception. The mill when properly worked is capable of making from six to twelve barrels of cider a day. It is made to turn by horse, steam or hand power, and when the apples are ground, a boy can press the pumace with ease. In the vineyards of the west the mill is the standard wine mill, having proved itself very superior for grinding the grapes, just cutting the skin without breaking up the core. Farmers find it an admirable machine to press currants, cherries, berries, cheese, butter, lard and tallow. The mill has obtained over one hundred silver medals and diplomas from exhibitions in various parts of the country within the last four years. Among other advantages it is claimed for the "Keystone mill" that it will grind the easiest, fastest and in the most perfect manner; that the press is the simplest, most powerful and quickest handled; that it is not hampered with screws and cog-wheels, which create friction to destroy its utility, and that it is well made and sold at a fair price. The mill occupies about two and a half feet by three, is four feet high and weighs 420 pounds.

There are various other specialties manufactured at the Eagle works, which our limits forbid us at present to describe. We have shown enough however, to give the reader an idea of the importance and magnitude of this great industrial establishment; and we have only to add that no one can visit the works without being impressed with the admirable arrangement of machinery and appliances, and with the perfect system and regularity with which each of the several departments is conducted.

## THE COTTON MILL INTEREST.

## THE HARRISBURG COTTON MILL.

It may be regarded as a substantial truth that there are periods in the histories of cities and towns when they stop growing. Sometimes it is the result of too great an expansion; sometimes the exhaustion of the source of nourishment. Either the "back country" is no longer a sufficient feeder, or commerce has been diverted to new channels, or some great calamity of flood or fire or convulsion of nature has overtaken the place; sometimes there is an arrest of growth without any apparent cause, when the puzzled citizens do not know what is the matter, and what remedy, if any, to apply. And yet there is always a cause, and a sufficient one—if they only look close enough and deep enough—just as there is a cause for mortal disease coming upon the strong man and prostrating him in the midst of his work. When a town gets into this condition heroic remedies may become necessary. If the disease is not arrested the patient either relapses into hopeless invalidism or dies. What the nature of the remedies shall be must of course depend upon the character of the trouble and the constitution of the sufferer. Twenty-five years ago Harrisburg was proverbially one of the "deadest" towns in the country. Business was stagnant, real estate was at a low figure, and the place began to wear a decayed and rusty look. Fortunately it had a few enterprising men who, seeing the danger, came to the rescue, and the result was the erection of the Harrisburg cotton mill. This establishment gave a new lease of life to the town—quickenened its sluggish pulse, and brought back thrift and prosperity. The healthy effects of this experiment led to the erection of other enterprises, and to-day Harrisburg emphasises the general truth that there is nothing like manufactures to put life into dead towns, to make small towns great cities, and make great cities grow with accelerated speed.

The first cotton factory built in America was erected at Pawtucket, Rhode Island, in 1790, by an Englishman named Slater. Slater's mill boasted twenty-four spindles. At that time not a single pound of American cotton was exported to England. As late as 1800 the entire stock of American cotton in England was comprised in a single bale. The extraordinary growth of the trade in after years may be illustrated by the following figures taken from British statistics: "The total amount of cotton consumed in great Britain from 1849 to 1869 amounted to 8,235,896,000 pounds, eighty per cent. of which was exported from America." In

Cramer's Almanac for 1804 we find that "carded and spun cotton by carding engine and spinning jenny to the value of \$1,000, and wove striped cotton to the value of \$5,500, was made in Pittsburg in 1803." In the same place, in 1806, Mr. Cramer tells us, "two very important manufactories have lately been erected and are now in operation. The one is a cotton factory which can spin 120 threads at a time with the assistance of a man and boy." In 1810 the same historian informs us that "one of the two cotton mills then ran sixty spindles, and the other contemplated working shortly 234." The annual products of these concerns are set down at \$20,000, and to heighten the interest of the reminiscence we may add that the machines were operated by water power.

The Harrisburg cotton mill is situated on North street between Front and Second. It is built of brick, four stories high, 200 feet long and 60 feet wide, with the end wings one story high, 64 feet long and 24 feet wide. The counting rooms and machine shops are contained in a detached one-story brick building at the north-east corner of the lot. The north-eastern wing is occupied by six fifty-horse boilers. From this department a passage leads to the engine room in the main building. The engine is 280 horse power, with a five foot stroke, driving a fly-wheel twenty feet in diameter. The first floor of the main building is the carding room, which contains 90 cards. The second floor is devoted to the looms, of which there are 271. The spinning room is on the third floor, and is resonant with the noise of 8,000 spindles. The dressing room is on the fourth floor or attic. The beams of the warping machines, filled with the thread cotton, are made to pass between rollers which revolve in copper troughs containing sizing; after which they are made to pass over copper cylinders, which revolving slowly and filled with steam, dries the sizing and renders the yarn fit for weaving. The western wing of the building is called the picking house, where the cotton in bales are received. Here are machines which operate on the raw cotton, opening its delicate fibres, and carrying it by air through a trough to the chamber above. The draught by air is obtained by a fan making nearly a thousand revolutions a minute. Here also the cotton is made into laps, and prepared for the cards. A flue is connected with each picking machine for removing the dust, the draught for which is produced by a fan making fifteen hundred revolutions a minute. This department was the scene of a conflagration in the winter of 1854-5. caused, it is thought, by a spark of fire emitted from some flinty particle concealed in the cotton when passing through the machinery. Fortunately the apartment was separated from the carding room by a massive brick wall and a heavy iron door in the main building, which confined the flames to the wing, and thus, perhaps, saved the entire establishment from destruction.

The wing itself sustained but little injury by the fire, but the machinery and stock of cotton it contained was totally destroyed.

A warehouse of brick, 100 feet long by 50 wide, stands a short distance north of the mill. During the war this structure was used for hospital purposes.

The ground belonging to the mill embraces pretty near all that lying between North, Second and Front to Herr streets, although only an area of 350x315 is enclosed and used for the operation of the establishment.

The mill produces 4,000,000 yards of heavy sheeting annually, affording employment to 280 hands.

The amount of cotton consumed annually is 3,000 bales, and the amount of coal 2,000 tons. About \$65,000 are paid annually to the operatives.

The character of the products of the Harrisburg cotton mill may be inferred from the fact that there is a demand for all that it can manufacture. The quality of the sheeting will bear favorable comparison with any made in the country.

An intelligent idea of the magnitude of the operations of the Harrisburg cotton mill may be formed by a comparison with other establishments of the same character.

In 1869 the six cotton mills in Pittsburg contained jointly 38,000 spindles, 950 looms, 475 cards and consumed annually 10,000 bales of cotton. Now if this machinery was equally divided between the establishments the results will show an excess in favor of the Harrisburg mill above either one of them of nearly one-eighth more spindles, one-fourth more looms, some twenty more cards and an annual consumption of nearly one-half more cotton.

## THE FIRE BRICK INTEREST.

## THE HARRISBURG FIRE BRICK WORKS.

When bricks are required to withstand great heat they are made of the most infusible clay, such as contain from sixty to eighty per cent. of silica, with from eighteen to twenty-five per cent. of alumina, and the remainder water. Oxide of iron may be present, but the light color of fire brick shows that it is in very small quantity. Lime would render the mixture fusible, and this is necessarily always absent. Such clays are of common occurrence in the bituminous coal fields, where they are found making the floor or underlying stratum of the coal beds. The material is indurated so that it is broken up like soft-stone. When used it is ground in a mill and mixed with fragments of previously baked fire bricks, or of some refractory stone, or with a coarse, clean silicious sand or gravel. The materials are made into a paste with water, moulded in hand moulds and baked in permanent kilns at a very high temperature. Good clay for fire bricks is also found associated with other clays of more recent formation. The potter's clay formation in various parts of New Jersey contains vast beds of excellent quality, together with others of very fine sand, suitable for mixing with the clay. The State of Rhode Island also furnishes an excellent variety of fire brick clay, and it is from this State and New Jersey that nearly all the fire brick manufactories in the eastern part of the United States derive their clay.

Fire brick are extensively used by blast furnaces, and for this use they are prepared of various sizes and shapes adapted to fit curves in the lining of the stacks and the arches of the flues. They are also employed in the ovens of bakeries, as lining for anthracite coal stoves, as crucibles, and various other purposes where an intense heat prevails.

The standard size to which all the larger brick are referred in reckoning their number is that of the common rectangular fire brick, which measures nine inches in length, four and one-half in breadth and two and one-half in width, one of which weighs seven pounds.

The Harrisburg fire brick works were established in 1869. The building, a substantial structure, fronts on South Second street, near Paxton, and is 150 feet long by 40 wide, with a wing 145 feet long by 60 feet wide—the wing and main building forming the shape of the letter L. The buildings, offices and sheds of the manufactory cover an area of about one acre of ground. As originally built, the factory contained but one kiln, and the clay used was that obtained at Woodbridge and Amboy, New Jersey. The bricks manufactured, however, from this material did not come up to that standard of excellence necessary to meet the requirements of trade, and ac-

cordingly about four years ago the firm, in order to improve the quality of the brick, commenced a series of experiments, which led to the discovery on the summit of the Allegheny mountains, in Clearfield county, of a deposit of rock or highly indurated clay which proved to be a very superior article, and when combined with certain proportions of the fine plastic clays of New Jersey are said to produce the best fire brick for puddling, heating and blast furnaces in the country. Impressed with the great value of this discovery, the firm purchased a large tract of this mountain clay land from which they mine the clay, which is shipped in large irregular blocks by rail to the manufactory in this city, where, after being finely pulverized by rollers weighing nearly two tons each it is ready for use.

The effect of this improvement in the quality of the brick was to create an immediate increase in the trade, and to meet the demand the firm, about two years ago, constructed an additional kiln, which, with the one previously in operation, enables them now to produce about 1,500,000 fire bricks annually, for all of which they find a ready and profitable sale.

As an evidence of the superior quality of the ingredients of their fire brick, it might be stated that the firm also ship large quantities of their mountain clay to six fire brick manufactories in the city of Pittsburg and other places where it is used for making brick and crucibles for smelting steel and glass.

The rapidly rising reputation of the firm, the popularity of its manufactures, the confidence it inspires throughout the trade, and the energy manifested by its manager have rendered additional improvements necessary in order to secure greater facilities for meeting the demands of a constantly increasing business. Among the improvements contemplated is the erection of an additional kiln at the works in this city, and the construction of a tram-way three miles long from their clay mines to the Tyrone and Clearfield railroad.

The factory is furnished with all the most approved modern machinery for manufacturing brick. The enterprise and intelligence of the management, as already shown, have always prompted a timely adoption of the best methods in this line of business; and one needs but to visit, as we have done, the several departments of the establishment, ascend from ground floor to attic and note the different successive stages through which the rough mountain clay rock passes into a finely moulded fire-brick to be convinced of the thorough system and efficacy that the firm have introduced into their business.

We predict for this business a future of greater success even than has characterized its past. Its past triumphs will be but a stepping stone to future efforts. Skill and energy will prompt to larger plans, and if we do not mistake we shall soon find the fire brick factory holding a leading place among the great industrial establishments of the capital city.

THE SAW MILL INTEREST.

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Prominent among the sources of wealth in our city is the lumber trade. Next to iron it is our most important interest, and one of the largest bill saw mills in the State is located here. This is owned by Bigler & Sons, and is most eligibly situated on the canal at the foot of Paxton street. A commodious basin fronts the premises, while a branch railway, connecting with the Philadelphia and Reading railroad, flanks it on the opposite side, thus affording the best possible facility for receiving the timber in its rough state by the one channel, and shipping it off when sawed by the other.

The dimensions of the mill are 150x50 feet, and is capable of cutting timber seventy-five feet in length. The steam engine is of 125-horse power. The cutting machinery on the main floor consists of two muley and one circular saws, which jointly have a capacity of sawing about 35,000 feet every ten hours.

In the basement of the mill are two cross-cut saws, a double shingle and lath machine. The shingle machine is able to make from 15,000 to 20,000 shingles per day, and the lath machine cuts about 9,000 lath per day.

The mill machinery is of the best description and arranged to handle logs, saw lumber and perform all the other work of manufacturing with as much saving of time and muscle as possible. Thus the firm are enabled to produce a large yield of sawed lumber and sell it at the lowest rates. With their facilities for manufacturing they can fill a large order for almost any dimensions in short time—bridge and other heavy timber for instance.

The firm fills all the orders of the Philadelphia and Reading railroad, and most of their shipments are by rail to all points between this city and New York.

The office of the firm adjoin the mill and those who deal with them will find them accomodating, prompt, reliable gentlemen, good for a contract of any size.

## THE FLOURING MILL INTEREST.

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Pennsylvania supplies itself with flour but has no surplus. Until within a few years Ohio has furnished two or three million bushels surplus, but her production has fallen off very much, until she consumes nearly all the wheat grown in her limits. When we go west of the Wabash river, we come to States that produce a very large surplus. The wheat crops of Illinois, Iowa and Minnesota, frequently reach the immense product of twenty million bushels, and the wheat crop of California ranges from eighteen to twenty-two million. The grain on the Pacific slope, after supplying its own population, is almost wholly exported to England, but the grain of the western States is stored in elevators in the great western cities of Milwaukee, Chicago, St. Louis and Toledo, from which it is carried to the eastern States by ship or rail to the various establishments where it is made into flour.

Plentiful as flour mills are in the country, we venture to say that not a fourth part of the population know how flour is made. The stones used in grinding are called French burr stones, though they are found in several of the western States, and in other parts of this country. In some flour mills steel-faced stones are used, but they make a flour inferior to that produced by the French burr. From the receptacle into which the flour falls from the stones it is carried at once to the bolt. This is a large cylinder, usually eight-sided, covered with bolting cloth, and made to revolve. It is set at an angle so that at the upper end of the bolt only the finest of the flour passes through the cloth. At the middle more of the bran goes through with the flour, and is therefore termed middlings, and at the lower end of the bolt the bran falls through. After passing through the bolt the flour is carried by small elevators into the meal room, and falls from quite a height on a clean floor, where it is allowed to cool. It is then packed in barrels and shipped. One hundred and ninety-six pounds is put in each barrel. If the flour is packed before it has had time to cool perfectly its quality is materially injured. Success in the flouring business depends on the judgment with which purchases of wheat are made, and the skill with which low grades of grain are cleaned and mixed with the better sort so as to produce fair flour.

The Paxton and Loehel mills in this city, both operated by John Hoffer, rank among the largest in the State. The former mill is situated on Sycamore street between the railroad and canal. It is run by a steam engine of sixty-horse power, and has a capacity of 700 barrels of flour per week.

The Lochiel mill is located directly on the canal, fronting on Eleventh street, and possesses one of the finest water powers in the State. It is driven by a turbine wheel. The capacity of the mill is 500 barrels of flour per week.

The mills draw their supply of wheat principally from Dauphin, Lebanon and Cumberland counties, yet heavy purchases are occasionally made in the west.

Mr. Hoffer has been in the flour mill business about twenty years. He is a careful and sagacious buyer, a reliable gentleman, and during his entire experience there has never been a word uttered against the integrity of his management or the strict honor of his business dealings.

## THE PLANING MILL INTEREST.

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Mechanical power for planing boards and other lumber is an old invention, and was long since brought to a state of perfection, merely limiting the more recent improvements to its adaptation to mouldings and other ornamental work. Among the earliest attempts to substitute machinery for the hand plane was that of Gen. Bentham, of England, who procured a patent in 1791. This was merely an application of mechanicism to drive a slightly modified hand plane. Though there was too little originality in the invention to prove successful, it was experimentally used, and by demonstrating its own defects, led to the invention of a machine patented by Mr. Bramah in 1802. This machine performed its operations by the rotation of a vertical spindle, carrying at its lower extremity a horizontal wheel, the rim of which was furnished with cutters or gauges, which were followed by a plane also attached to the wheel. Though American patents were occasionally granted for planing machines from the years 1800 to 1828, but little interest was felt in the invention until the latter period when William Woodworth, of New York, patented the celebrated Woodworth planing machine. In 1829 Irvin Emmons was the recipient of two patents: One for cylindrical and one for circular planing machines. From this time to 1840 American inventive genius was actively engaged in this direction and many patents were annually granted. In 1836 Daniels improved the Bramah or circular machine, which brought it into general notice under the name of the Daniels' planer. It is usually constructed with but two cutters and the plane of the Bramah machine is entirely dispensed with. Though not as rapid in its operation as the Woodworth, the Daniels' planer, with its improvements, is still preferred and generally used for cabinet and other fine work to which it is adapted. The Woodworth machine performs its operation by the use of cylindrical cutters attached to a horizontal shaft, revolving with great velocity while the board is borne along under and in contact with them, by means of two or more horizontal rollers, which clamp the board on either side, the rollers being driven by mechanicism communicating motion from the cylinder. Numerous improvements are annually made to these machines for their more perfect adaptation to special uses, and to such perfection has it been brought that there is scarcely a shape of timber in the rough which cannot be made smooth by the aid of its penetrative knife.

The success of this and other machinery in working lumber, led to the establishment of factories confined alone to this particular industry, and

there is now scarcely a town of note in the country that does not boast at least of one planing mill.

In this city there are several extensive mills, the oldest and largest of which is the Paxton mills, owned by John B. Simons, Esq. These mills are located on the canal at the foot of Walnut street, and with the necessary sheds, out-buildings, &c., cover a couple of acres of ground. Mr. Simons occupies a high position, both as regards the extent of his business and the excellent quality of his productions. He has spared no expense in introducing the latest results of mechanical genius in this branch of industry, and his extensive and well ordered establishment may be taken as a fitting representation of the best methods now known in this important industrial pursuit.

THE BRICK INTEREST.

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The rapid growth of our city the past several years, and the multiplication of fine buildings, has very greatly increased the demand for first class building bricks. There are a dozen manufactories of this class in this city; among the foremost of which is that of Kleckner & Zimmerman. The kilns and yards of this firm are located in the northern section of the city, between the Pennsylvania canal and Paxton creek, and comprise about 25 acres of the finest brick clay in the State. The establishment is supplied with all the modern machinery necessary for the prosecution of its work, and produces annually about 3,000,000 of brick distinguished by builders for their superior quality. The senior member of the firm is a practical brick-layer, and it is therefore reasonable to suppose that he is competent to know what a good brick is. The superficial observer might suppose it does not require much science or skill to make brick; a woeful mistake. Poor brick could be made perhaps by an inexperienced person; good brick require care and skillful attention. The amount of moisture to mix the clay well; the drying in the sun; the building of the kiln; the proper amount of burning, all these are intricate subjects. That Kleckner & Zimmerman understand it, the good quality of the brick made by the firm attest. They are everywhere in demand at the best market prices. The "triumph of mind over matter," is, perhaps, no better illustrated than in this case—changing a bed of black mud, by skill and machinery, into the best building material, soon to adorn our streets in the shape of costly and elegant business blocks, or tasty and comfortable residences—the homes of happy people. The counting room of the firm is located at No. 30½, South Second street.

## THE COMMERCE OF HARRISBURG.

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There is no reason why the commercial growth of Harrisburg should not keep pace with its rapid manufacturing industries. The largest commercial cities are uniformly those in which manufactures have their largest development. New York city for instance which is not usually classed as a manufacturing city at all, because commerce is the paramount interest, in fact possesses a greater extent of manufactures, yielding a much larger product than Philadelphia, with all her iron and coal, and all her special devotion to manufactures. When we speak of the manufacturing cities of New England we think of Lowell, Manchester, Lawrence and Lynn. Yet Boston, which is regarded as a purely commercial city, manufactures a greater variety of commodities of greater value than all of her manufacturing satellites.

Harrisburg is a natural commercial centre, made so by its comprehensive railroad system. The converging roads are bringing to Harrisburg, where competition has a full field, the varied products of the State for distribution; and when a city has reached this point it has secured not only commercial supremacy, but also commercial domination. We have well earned the right to say of our city "all roads lead to Rome." This concentration of wealth, of business, of production, far in advance of the ratio of the growth and development of the State in general, explains why cities grow more rapidly than their tributary regions.

According to the mercantile appraisers report of 1873, there were *five hundred and fifty-two* regular licensed business houses in the city during that year. Of course, some of these do a very small business, yet there are a number whose annual sales reach hundreds of thousands of dollars, and their business constantly growing.

THE GROCERY AND PORK PACKING INTEREST.

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A series of papers, interesting to those outside of, as well as in the trade, might be written on the grocer's business as conducted in this city. The capital involved is large, and the extent and influence exerted in commercial circles by the operation of the trade is really enormous. The business includes nearly all the products of the country and it enters largely into almost every line of importation. Its aggregate of sales is said even to excel the dry goods. The necessity for the pursuit of the grocer's business is absolute. It cannot, in the "circle of exchanges," be dispensed with, if we would have a "fair balance sheet" in the world.

Of course, like every thing else, the business of the grocers grows with the country. It has not been so many years, since wholesale dealers in grocer's goods were moderate in their demand for customers. The population has since then grown up from ten or fifteen to forty millions of consumers; and as the country has added proportionately to its wealth, the key to the vast increase in our internal and external commercial enterprise is given. We do not know that this discovery is remarkable or new, but it is certain the trade of a community depends upon its wealth as well as its population; and as the wealth of the United States is not largely aggregated in the hands of a comparatively few capitalists, trade flourishes and enterprise is rewarded. One of the largest and most influential grocer establishment in Harrisburg, is that of Messrs. Eby & Sons, wholesale and retail grocers and pork packers, corner Market and Fifth streets. This house has been in active operation since 1846. Its success has been entirely through direction of the senior partner, Mr. J. R. Eby. It was first known as having a commanding interest in the trade in the old original quarters, when in 1859, the present spacious and substantial building was erected. The firm has long been identified with the grocer business, and are fully acquainted with the requirements of the people.

They carry the largest stock of staple and fancy grocer's goods of any house in this section of the country. Their spacious warerooms crowded with all kinds of goods relating to their trade. The property fronts on Market street 52 feet, and on Fifth 150 feet, with extensive floors above, and basement below main sales room for the storage and sale of the heavier goods. Orders and bills are made up systematically and despatched with precision, and always in good order. The firm have succeeded in raising their house to its present commendable position in the trade interest of our city, and they are justly entitled to the appreciation with which their house is held by the trade.

We would say here, that after visiting most of the principle stores of our city, we saw none that would compare in point of view with the sales room of Messrs. Eby & Sons. Each department is arranged systematically, and everywhere can be seen neatness and perfect order, which is essential to every well regulated business. One part of the room is devoted exclusively to manufacturing tobacco and segars, domestic and imported, showing some of the finest segars ever witnessed. Further on, our eyes meet the department of teas and spices, making a display pleasing and inviting indeed. One would suppose their main specialty was given to this branch of trade. The many canisters indicating the greatest variety of assorted and selected teas. No less than thirty to forty of each grade.

We are glad to see with what enterprise and energy the senior of this enterprising firm conducts business, and we feel and appreciate all his efforts, for we believe it to be as much to the interests of our rapidly growing community as to his credit. In order that they might be able to compete with the eastern and western cities, they have erected two large smoke-houses, curing, smoking and packing selected pork, being able to supply the demand at market rates, and at short notice. We argue that this is not only an advantage to all dealers and consumers in this portion of country, but really to their interest, while they are buying their goods fresh from the smoke-house, they are also saving the delay and expense of transportation and profit of middle-men. Besides their immense trade in provisions, they deal very extensively in leaf and manufacture largely all grades and brands of segars. They pack annually no less than five to six hundred cases Pennsylvania leaf, buying constantly from farmers of our State. We must not forget to mention that they are also dealers in refined carbon oil, and are really the only parties in this section who are able to sell at manufacturer's prices. They purchase in car load lots, gaining advantage in freight. They treat all customers alike, and guarantee all sales of goods to be what represented.

## THE GROCERY AND SPICE MILL INTEREST.

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The grocery house and spice mills of Jacob F. Haehnlen, No. 114 South Second street, is one of the interesting institutions of Harrisburg, which strangers and visitors must inspect before a full knowledge can be obtained of the commercial importance of the city itself. The establishment is a credit to any city, (there being but few larger in the State,) and the owner well known as large-hearted, able and public spirited citizen, eminently deserving the success which has crowned his business career. Commencing business a dozen or more years ago in an humble way, he now controls a trade whose ramifications extend hundreds of miles into the interior of the State. The wholesale grocery department is in South Second street, as already stated. The building is of brick, of imposing architectural effect, with one of the largest and finest store rooms in the city, in which are mountains of coffee, sugars, spices, soap, and the multitudinous articles which go to make up the grocery trade.

The spice mills of the establishment are located at the corner of Cherry and River alleys. The building devoted to this purpose is a large and commodious brick structure supplied with every convenience for facilitating the operations of the business.

The business of Mr. Haehnlen is exclusively wholesale and his success has not been achieved by superficial display or any of the cheap arts sometimes resorted to by dealers. Liberal yet judicious advertising by purely legitimate methods, in which, as well as in his establishment, a constant care seems to have been exercised to state exact facts only to their customers and to the public, has gained for him, as it always will in time, the confidence of the community. He has built daily, not for that day alone, but for the future and it is a genuine pleasure to remark and call attention to this solid success so well achieved.

Another highly important factor of success with him has been the manner of purchasing goods. Buying almost exclusively from first hands and, paying cash, he has saved the liberal discount always given to this class of buyers by eastern houses. He has also aimed to keep his expense account at the lowest practical figure and the advantage of all these things has been given to the customers, being satisfied with fair profits for himself. In short, there are few of our business men who have made for themselves a more solid place in the esteem of the public than Mr. Haehnlen, and there are none who have more thoroughly won the respect of their cotemporaries.

## THE DRY GOODS INTEREST.

The trade in dry goods, considered as a branch of commerce, is the most important of any now existing in the country. It controls a greater amount of capital, employs a larger number of persons and distributes a greater value of commodities than any other branch of mercantile pursuit. The list of dry good's merchants in our large towns and cities is far larger than will be found engaged in the sale of merchandise under any other heading, while through the interior the very name of "merchant" is associated with one who, whatever else he may sell, is a dry good's dealer. There are certainly "merchant princes" among those engaged in mercantile pursuits; but in capacity, energy and aggregate wealth, the dealers in dry goods, as a class, are emphatically *the merchants* of our day and country.

The visitor to Harrisburg who comes here on business or for pleasure, having formerly been familiar with the city, and who has not taken a good look at it for some years, will be astonished at the changes and improvements which he will see at every step. Numerous decayed and rickety tenements have disappeared and vast structures dedicated to trade have been erected.

The most noticable is the large, attractive and elegant dry goods establishment of David C. Kolp, on Market street, opposite the court house. This dry goods palace, with its large frontage on Market street and extending in depth one hundred and thirty-five feet on Raspberry alley, was the pioneer building of grand dimensions intended for business purposes. Owing to the great traffic which greeted Mr. Kolp soon after the opening of the house, (October, 1870,) it was found necessary to arrange the large basement floor for the heavier goods and for wholesale purposes, and also to use the second floor for shawls, cloaks, furs, ladies' suits, lace curtains, reps, terrys, &c., &c. These additions, taken together with the main sales-room, aggregates a total area of 8,800 square feet, or a clear store room of 355 feet deep by 25 feet wide.

Who can question the magnitude of a business requiring the aid of such a large space, in the control of one man, (not thirty-five years of age,) and who can doubt the energy and high ability of the man from whose originating mind and high ambition, as a merchant, such ample success has sprung? David C. Kolp, the leader of the house that has thus become the nucleus of the dry good's trade in the capital of the State of Pennsylvania is of Lancaster county origin. In his early years he was in the employ of such men as Morris L. Hallowell, of Philadelphia, Peter Haldeman, of Colum-

bia, and Daniel Eppley, of Harrisburg. Inheriting the enterprise and knowledge of these merchants, he sighed for wider fields of activity, and as soon as an opportunity presented itself he was prepared to take hold of it.

The energy, intelligence and integrity in business calculations have shone out most conspicuously since his great venture, as predictions from time to time of failure have been entirely unfounded, and we find him to-day in better credit and better condition than when, about four years ago, he opened the doors of his splendid establishment to the public.

## THE DRUG INTEREST.

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That the general trade, indicated in the heading of this article, has reached enormous proportions in this part of the country will be sufficiently apparent when we have fully set forth, as we are about to do, the history and transactions of the concern whose name will be found in this article.

The drug trade, being of a very reliable and permanent character, has laid the foundations of many considerable fortunes in this country, and of quite a number of houses that have become continental in their scope and importance. An influential house of this character is that of Messrs. D. W. Gross & Son, No. 119 Market street, the oldest and perhaps the best established business of its kind in Central Pennsylvania, having been established in 1826.

It is quite within bounds to say that no drug house in the State, outside of Philadelphia and Pittsburg, can show a cleaner record, a more commodious store or a larger stock. The location of the firm is near Market Square and their store is among the finest in the city. It has been fitted up at great expense, and with excellent taste and judgment.

The first floor is their general salesroom, where, also, is found the office of the firm. The second floor is devoted to general storage and manufacturing purposes. The basement is used for packing and storage of heavier goods.

The firm do a large wholesale business, but employ no travelers, depending upon their well earned reputation for fair dealing, reliable goods and prompt attention to business entrusted to their care, and all their business comes to them upon direct orders. Thus their trade is held firmly in spite of all competition. Sales may at times be lost, but such a thing as losing a customer they desire to retain is unknown to them.

Several reasons may be discovered for their success. First, thorough acquaintance with the business in all its branches from boyhood, the junior member of the firm being a graduate of the Philadelphia College of Pharmacy. Second, a careful study of the wants of the market. Third, great skill and judgment in purchasing and selecting stock. Fourth, keeping none but the best quality of goods, and sufficient of them; and, lastly, fine business ability, united to energy and industry, and a pleasant and sociable bearing.

In fine, they know how to buy and what to buy to suit customers. There is no guess work about the firm; they have it all reduced to a science. Look about their large store; here are every variety of paints, oils,

glass, drugs, patent medicines, etc., and the thousand things too numerous to mention. Here are all articles that enter largely in the everyday wants of society—even the medicines—and they offer the best articles at the lowest prices.

Indeed, they make it a point to have the best, and every article sold in their store is pure, if guaranteed. Retail dealers soon get to know that it is to their advantage to buy of a wide-awake firm as this is.

In paints, oils, etc., every one knows there are certain times when these can be bought at immense advantage by a skillful dealer. Gross & Son know just when to do this; so that they are always able to offer these at rates that no one else can get below. In patent medicines, too, it is interesting to note what quantities they have of all leading articles. One almost wonders there should be any sickness at all in the world with such heaps of panaceas. They keep all the patent medicines which are used in this section.

The retail department is unexcelled. They have every variety of drugs, perfumery, toilet ware, etc. Prescriptions are compounded of the very purest drugs, and by experienced pharmacentists. In short, it is pleasant to claim for Harrisburg a drug house of the first rank, without a superior in character, or amount and variety of stock carried, and with hardly one in amount of business done this side of Philadelphia or Pittsburg.

## THE TOBACCO INTEREST.

"Sublime tobacco! which from east to west  
Cheers the tar's labors, or the turkman's rest."—BYRON.

"I knew by the smoke that so gracefully curled."—THE WOODPECKER.

Delightful, deluding and attractive weed of a thousand virtues! The dinnerless operative lulls the sharp gnawings of hunger by a whiff—the gourmand takes it as a peristaltic persuader, and finds it as efficient as Worcester table-sauce. The fat man takes it as a corrective of corpulency—the thin and sanguine one as a soother—the happy man as a recreation—the miserable as a solace—the medical student as a disinfectant, and generally in large doses. In fine, every one makes a plausible excuse for his indulgence in the pleasure he delights in. Indeed, fashion appears like an old boatswain, to pipe all hands.

Truly, these are piping times, my masters! East, west, north and south, the custom has become prevalent, and the fragrant weed is in rapid consumption.

If we require royal authority and example for smoking, can we select one more ancient than the renowned King Cole, of pleasant memory? For the poet distinctly avers, that

"He called for his *pipe*, and he called for his bowl.  
And he called for his fiddlers three."

Then, in *Bombastus Furioso*, we read:

Frs.—Now shall we smoke the calumet of peace.

ART.—I shall smoke fine-cut, you smoke what you please.

BOMB.—What'er your majesty shall deign to name.

Fine-cut or long to me is all the same.

Tobacco, in the reign of the royal pedant James, was sold for its weight in silver, (is it not veritably worth its weight in gold?) But even now it is dear enough to be worth smuggling. In proof of which we often see in the newspapers a notice of a seizure by the revenue officials who therein most aptly prove themselves tobacco-stoppers! By the way, the most delicate of tobacco-stoppers was that once used by the illustrious Sir Isaac Newton, who, in a fit of abstraction, actually seized the taper finger of a young lady, and unconsciously applied it to the glowing bowl.

Ladies, who love your lords, do not repine at their addiction to the pipe! Men who smoke seldom get into a passion; it causes the most irritable to "draw it mild," and renders them as smooth as a flat-iron does your muslin handkerchiefs.

The cigar is of Spanish origin, and derives its name from the Spanish word *cigarro*. Tobacco was the name used by the Caribees for the pipe in

which the natives of the island smoked a certain weed, which name the Spaniards transferred to the herb itself. The botanical name of the various species of the plant is *Nicotiana*, so called after Jean Nicot, who was an agent of the King of France, in Portugal, where he procured the seeds of the tobacco from a Dutchman, who had procured them from Florida. The plant appears to be a native of the West Indies and of different parts of America.

Up to the year 1840 the manufacture of chewing tobacco was confined exclusively to unsweetened or raw tobacco, which, compared with the article consumed to-day, was unpalatable, being made from the raw leaf cased and sweetened in water in the same manner as the "dog-leg" smoking tobacco of the present day is made. "Dog-leg," we may explain, is an article in great demand among that part of the community who advance the cause of civilization by aiding the extension of our railways. The majority of those who consume the weed, in view of the above explanation, can doubtless account for the rigid self-denial of our forefathers.

The idea of sweetening chewing tobacco was first conceived by Jesse Hare, a citizen of Lynchburg, Virginia. His experiment found so much favor with the public as to induce the manufacturers in various parts of the country to adopt a similar method. The practice, however, did not become general until Virginia, whose soil is peculiarly adapted for the culture of the tobacco plant, attained supremacy in the cultivation and manufacture of tobacco. The cultivation of the plant in Pennsylvania and the remaining Middle States, which at one time promised to become general, was abandoned, Virginia holding the supremacy in the manufacture as well as the cultivation of tobacco until the beginning of the sectional war, when consumers and dealers were compelled, from necessity, rather than choice, to seek other channels for a supply. Kentucky, Tennessee, Missouri, Pennsylvania and Connecticut supplied an article of leaf tobacco equal in all other respects and superior in body to the products of Virginia, besides being free from sand, a peculiar characteristic of all Virginia leaf. Necessity wrenched the trade from Virginia. The northern manufacturers engaged in the business were not slow to avail themselves of the opportunity afforded them. Not satisfied with bringing to their aid all the improvements that could be supplied in the substitution of machinery for hand-made work, they were continually devising new improvements on the old method, until they succeeded in manufacturing an article bearing little resemblance to that of anti-bellum times. Tobacco of northern manufacture commands a better price in the market to-day than Virginia tobacco, simply from the fact that the manufacturers of that State do not appear to realize the necessity of producing an article superior to that manufactured before the war.

Harrisburg occupies a prominent position in the manufacture of tobacco. There are several factories in the city devoted exclusively to the manufacture of cigars, and 366 dealers hold a government license for the sale of manufactured tobacco.

The manufactory of John C. Herman, No. 23 North Third street, College Block, ranks, both as regards the quality and quantity of its products, with the largest in the State. He commenced business here in 1866 in a small room at his present location, and although a comparative stranger, he soon won a reputation for integrity in his dealings, the natural effect of which was to increase his trade to such an extent as to make it necessary to enlarge his establishment to its present extent. Mr. Herman manufactures about one million cigars annually and purchases about the same number, making his annual sales of cigars alone in the neighborhood of two millions. His sales of chewing tobacco also reach a high figure. When business is brisk Mr. Herman employs about twenty workmen. He does a large wholesale business in central Pennsylvania, while his retail trade is very extensive. In short the establishment has grown to maturity and all who know the affable and energetic proprietor rejoice in his success.

## THE HARDWARE TRADE.

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The substantial and thoroughly reliable hardware house of Henry Gilbert & Son is almost too well and favorably known to require a formal introduction to the people of central Pennsylvania. Their immense establishment is the outgrowth of some thirty-five years experience, rendering it the oldest, as it is the foremost hardware house in the city. The great store-room, at No. 216 Market street, is literally crowded with every variety of hardware, foreign and domestic. It is impossible to give an idea of the various goods on the shelves, floors, and in the ware-rooms of this extensive concern. They run through the entire catalogue, from the finest cutlery to the coarsest hardware, and a thorough inspection of the establishment would require much time, as something novel and interesting turns up on every side. The great practical experience of the senior member of the firm in the business, enables him to understand thoroughly the requirements of this section of the State. That he does fully understand and comprehend it is evidenced in their large annual sales, despite the depression in financial circles. Their trade embraces a wide expanse of country, and all customers find it to their advantage to select from his mammoth stock, as by doing so they buy nearly as cheap as they can in the east, thus they not only save their freights, but receive their goods promptly and in better order than when they are shipped from a great distance.

To get an idea of the large trade of this house, one should see the clerical force of the establishment waiting on customers and doing up packages. The figures of the firm's annual sales runs high up in the tens of thousands, which is a just and pleasing reward for the years of industrious attention to business, honorable dealing and enterprising management of the excellent and popular gentlemen comprising the firm.

THE JEWELRY INTEREST.

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In the very word jewelry we have made an unconscious vindication of its use. It is derived from the word jewel, meaning precious stone, or an ornament in which precious stones are used, and with the Italian *gioiella*, the French *joyau*, the German *juwel*, and similar terms in other European languages is allied with the root of the Latin word *gaudium*, joy, and was an instructive expression of the pleasure naturally excited by the sight and use of jewels.

In the various museums of Europe and this country the collections of the jewelry of various nations are most interesting and instructive. They afford the data for the study of the customs of nations which have passed away, leaving frequently behind them no fuller record of their lives than such as is contained in these collections of their appliances for personal decoration. From the polished to the engraved bones worn as ornaments by the dwellers of the lake cities, up to the quaint, but exquisitely worked golden jewelry of the Etruscans, the Romans and the Byzantians, the gradual growth of the art can be traced step by step, and the different national characteristics of the various nations can be studied as accurately as in their architecture or in any other records of their culture.

In modern times the improved processes of the arts, arising from the application of science to their methods, and the introduction of the use of machinery, has so cheapened and increased the production of jewelry as to place within the reach of every one the ability to gratify his taste for it. In the United States the greater equality of our political conditions, together with the freer circulation of the results of industry and the activity of our social life, has led to the almost universal use of jewelry.

By the report of the census of 1870, there was produced in the country jewelry to the value of eleven million dollars, and the extent to which this has increased during the last fourteen years justifies the estimate that with the importations from abroad, there are consumed in the country at least twenty-five millions of dollars worth of jewelry a year.

There are a half dozen or more establishments in Harrisburg engaged in this business, but decidedly the representative dealer is C. A. Aughinbaugh, in Bergner's building, corner of Third and Market streets, opposite the Lochiel hotel.

Mr. Aughinbaugh came to Harrisburg in 1860, and in 1865 opened in the jewelry business in a little 10x18 shop on Market street, below the post office. With little capital, except determination and energy, he made the most of these, and fully demonstrated to the dwellers in our city that

within that little jewelry establishment was a live man. How success, brilliant and solid, has crowned these efforts the Harrisburg public is well aware. He was finally crowded out of his little establishment, and several months ago leased the magnificent corner store room, where he is now located. The large stock carried by Mr. Aughinbaugh—being always ahead of the market that he might anticipate its wants—and dealing direct with the principal manufacturers and importers, together with the strong confidence inspired by years of upright and fair dealing, are the principal causes which have brought about the rapid growth of his trade.

Mr. Aughinbaugh's sales room is elegantly fitted up with four plate-glass show cases, and handsomely carved walnut cabinets, with plate-glass sash against the wall, are filled with fine goods. One of these huge cases is devoted exclusively to watches, another to fine silverware, and two to jewelry, including diamonds and other precious stones, while in the wall cabinets are glittering massive solid silver wares, in single articles and sets. The show windows are superbly "dressed," and filled with magnificent imported clocks, silver ware, vases, jewelry, etc. Where one, who has any taste for the artistic and beautiful, immediately falls in love with the "darling" thousand of exquisite works of art. A splendid mirror at the rear end wall and two large prism chandeliers, add much to the adornment of the establishment, which, taken altogether, is decidedly one of the most handsome in Central Pennsylvania—a credit to our city and justly the pride of its proprietor.

THE MUSICAL INSTRUMENT INTEREST.

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The civilization and education of a people is measured by the degree in which it cultivates the fine arts. If these premises are correct, our country has attained a development of civilization which but several years ago would have been regarded as impossible; since, notwithstanding the existence of the most gigantic, sanguinary and destructive civil war which the world has ever witnessed, the United States have succeeded in bringing to perfection an art industry, the inventive creations, developments and culminating results of which are devoted to the Muses. The true place of this art is the altar of "home," where it shines calm and effulgent, animating or soothing in turn, in the form of domestic musical harmony.

Harrisburg has become famous for its musical taste, and for the skill of its musicians developed under the stimulus of the Harmonic Society and other institutions. It has several establishments in which musical instruments are sold, but the one which has risen to most prominence and popularity is that of H. C. Orth, No. 310 Market street, near the city post office. The history of this house illustrates how much unswerving integrity, close attention to business, and sagacity in providing for all probable demands has to do with success in any department of trade. Mr. Orth is "native to the manor born," and has legitimately won a place among the intelligent, enterprising and progressive business men who are giving the city its stand among the leading commercial centres of the country.

Mr. Orth commenced business in 1866 in a small room, No. 4 North Third street; but finding that it would be advantageous to enlarge his domain, he moved into a store room on Market street, near Fourth. Here he remained several years, when finding his trade increasing rapidly, he found that his quarters were inadequate and too confined. More room being imperatively demanded, he finally removed to his present location, since which the growth of his business has been marvelous, until his establishment has assumed the character of the leading musical house in central Pennsylvania, with reliability, enterprise and integrity, selected as the cardinal points of its business action and faith.

Mr. Orth deals only in such musical instruments, the superior merit and reputation of which enables the manufacturers to entrust sales only to the very best houses in the country.

The house is enabled to offer special inducements to cash in this branch of the business.

Mr. Orth has also built up a splendid trade in the smaller instruments, such as violins, accordians, &c. Violin strings and trimmings for all string-

ed instruments, and everything else usually found in the best supplied establishments of this kind may be obtained in almost endless variety and at prices which cannot be reduced even in the eastern markets. Mr. Orth also keeps a full line of sheet music, artists' and wax flower materials, optical goods, pocket cutlery, scissors, razors, stereoscopes and stereoscopic views, pocket books, fancy leather goods, imported stationery and perfumery.

In any review of ordinary length it is impossible to mention all the meritorious peculiarities of this establishment; but this reference cannot be closed without in some manner reverting to the advantages offered to teachers and scholars in the extent of its stock, its popular prices, and the exceedingly favorable terms extended to buyers.

The integrity and high personal character of Mr. Orth are producing their legitimate results. Trade is continually multiplying and expanding until all portions of the city and vicinity are beginning to pay tribute, and even distant towns, are becoming valuable and steadfast customers. But Mr. Orth has fully deserved all patronage received as well as the certain increase of the future.

## THE NOTIONS INTEREST.

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A very important branch of the wholesale trade of Harrisburg which has grown up with it and out of it, is that of notions, and all the general miscellany of small articles described under that general term.

The chief establishment of this trade is that of Hench & Stewart, Brant's Hall, Market street. Our country has been a prolific producer of ideas, and when these have been embodied in small articles for the convenience and adornment of mankind, they have been termed notions, and gradually have attracted to themselves hundreds of articles which originated no one knows where, until this class of goods embrace, as dealers well know, a large part of the useful small dry good wares in the world. Certain it is that if the stock of Messrs. Hench & Stewart are all embraced under this head, the world would have scarcely been worth living in without them.

The firm occupy the entire half of the first floor of Brant's Hall, and, notwithstanding the immense dimensions of their rooms, they seem to be crowded to repletion. It would be useless and well nigh impossible to detail all the varieties of goods in Hench & Stewart's stock, which embrace almost everything in the notion and trimming line from a row of pins to the costliest laces.

The business of the firm is conducted by Mr. Hench, his partner having died several months ago. Mr. Hench is what is known in business as a thoroughly live man. He has surrounded himself with efficient helpers, who seem ready to catch his spirit, and the whole intricate business, with its endless variety of detail, moves as smoothly as if conducted by machinery, and customers whether purchasing personally or ordering through the agents of the house, or by mail, have all their wants attended to with surprising promptness. Scarcely a town in Dauphin or the neighboring counties is without the wares of the firm, and new firms and places are constantly added to their list, while like officeholders none resign and few die, for why indeed should a business die when its conductors buy the best goods at the lowest prices, as they do at Hench & Stewart's. Only a few years ago the establishment was a healthy slip, and to-day it ranks among the most sturdy, thrifty and prolific trees of our commercial orchard. It is always agreeable to deal with pleasant honorable people, and in such cases business relations rapidly changes into friendly ones, which is one of the secrets of Hench & Stewart's rare success in retaining the trade they got.

## THE WALL PAPER INTEREST.

The first mention of wall paper manufactured in this country was in 1765, and within twenty years from that time there were manufactures in Pennsylvania and New Jersey, and Boston establishments supplied Massachusetts and other States. All that could be made found a ready market, and immense quantities were imported from abroad, particularly from France. The paper of domestic manufacture, however, was of inferior quality. The first patterns, with glazed grounds, were made in the United States in 1824, and soon after the best French designs began to be imitated.

The process of making paper hangings is similar to that of calico printing; or it may be said that for the production of the more elaborate patterns, requiring many colors, the process is not unlike chromo-lithography. At first the paper was made in sheets not more than thirty inches long, which were pasted together, and the printing was done by hand—block after block, each with its own color. The introduction of new paper-making machines gave rolls of from one to two thousand yards in length, and from twenty to forty inches in breadth. There are also machines which will print twenty or more colors in one operation.

Some of the finer descriptions of paper are still printed by hand, particularly the gold and velvet patterns, for which some manufactories employ thirty or more hand presses. A satin or highly polished surface is given by machinery to the ground of some papers before they are printed with the patterns. For gold, "flock," or velvet papers, the pattern is printed with glue size, and then with varnish or gold size before the flock or bronze is applied. The flock is ground and colored cloth or wool, and is dusted on the pattern before the glue and size impression is dry, and for bronze a machine lays on the material while rollers remove the superfluous bronze. There is an almost infinite variety of patterns; new designs are constantly appearing, and the American papers in beauty and design, and perfection of finish, fairly compete with the finest specimens manufactured in Europe.

The representative wall-paper house in the city is that of W. S. Shaeffer, in the new Masonic Hall building, Third street. His large and commodious store room is filled to repletion with wall paper of every grade and design, from the twelve cent pattern to the elaborately finished velvet and gold; and it is scarcely possible that from among all this endless variety the purchaser will fail to discover something that will please his fancy.

The establishment and its courteous and genial proprietor are decidedly popular "institutions" in Harrisburg. Both are so favorably known to the people at home and abroad that we confess to a difficulty in saying

anything new about them. Whatever there may have been of commendation in former references has been more than justified by more recent experiences, and Mr. Shaeffer never "grows weary of well doing." As he has been found heretofore, so he will be found now—enterprising, affable, obliging, and always ready to give his customers the best of bargains.

THE FURNITURE INTEREST.

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The representative house in the furniture trade is that of Boyd & Co., Nos. 26 and 31 South Second street, near Chestnut. It is the oldest furniture house in Harrisburg, being established by James R. Boyd, Esq., previous to the war of 1812. The store rooms of the firm, of which they have several, are very large and commodious. The firm carry a large stock of all classes of fine furniture, as well as a full variety of the common grades, and the establishment ranks as one of the most extensive in central Pennsylvania. The success of the firm has been achieved by a practical knowledge of the business and a due appreciation of its necessities.

Many of the hotels and the most elegant private residences in the city have been supplied with furniture by this firm. Their trade, however, is not confined to the city alone, but extends to many of the towns in the central part of the State.

From the very commencement of this house in this city they have aimed to keep even pace with all competitors, so far as style, quality and price are concerned, and it is not a stretch of veracity to state that they have succeeded beyond their most sanguine expectations. Their goods will be found reliable and durable, and are sold at prices which cannot be reduced in Harrisburg or in middle Pennsylvania. The gentlemen comprising the firm are possessed of ample capital, energy, youth and excellent personal character, enough to carry them through any venture in which they may engage with honor and entire success.

## QUEENSWARE, FRENCH, CHINA AND LAMP GOODS INTEREST.

The business house of T. Hammersly, 116 Market street, corner of River alley, has grown to its present vast proportions within a limited number of years, and may be accepted as another powerful illustration of the possibilities of any future wherever energy, perseverance and business tact are made the governing principles in mercantile life.

Commencing at first in a modest way, several years ago, Mr. Hammersly rapidly established himself in the confidence of the public throughout the city and central Pennsylvania, and his house has now become the largest distinct queensware establishment in Pennsylvania, outside of Philadelphia or Pittsburg.

A notable feature of the house is the fact that Mr. Hammersly is a direct importer from Europe, principally from France and England, receiving by almost every arrival of steamers fresh consignments of goods from the great manufacturing centres of those countries. By these importations he saves the profits made by the middle men in New York and Philadelphia, and is able to mark down his goods to retail dealers as low as they can be purchased in either of the two cities named. This arrangement gives Mr. Hammersly great advantages in the prosecution of his trade, and is, perhaps, one of the principal causes of the rapid rise and prosperity of his establishment.

Mr. Hammersly does also a very large retail business. His handsome store room is a perfect mass of queensware, French China glass ware, fancy lamps, French wax flower shades, jars and mantel ornaments, and the visitor is almost bewildered in his attempt to make a selection where every article is equally handsome and convenient.

Mr. Hammersly seems to have most excellent taste in selecting goods, and knows the good from the poor qualities. He also enjoys an enviable reputation for having just exactly what you want, and customers seldom leave his store without getting suited to a dot. To buy goods at Hammersly's is becoming quite the fashion, and no lady who aspires to good society now thinks of buying anything without at least looking at his fine and extensive stock.

THE UPHOLSTERY INTEREST.

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Upholstery, as a specialty, is comparatively a new business in our city, yet it has grown rapidly and now ranks as a very important interest. The establishment of Samuel Adams, No. 104 Market street, may be regarded as representative in this line of business. Mr. Adams has great experience in this specialty, and it may be truthfully said, and to the credit of his house, that its business friends only become known to insure their accession to the ranks of his permanent and reliable customers. As the old adage has it, the "proof of the pudding is in eating of it," and perhaps the best evidences that we can furnish of Mr. Adams' superior taste and good judgment in his business, are the many admirable samples of his workmanship to be found in the city. Almost all the residences of our wealthiest citizens, in their interior decorations and adornments, bear the mark of Mr. Adams' master hand. But it is in our elegant churches, the palatial Masonic Hall and Grand Opera House, the State Capitol buildings and the various State offices that Mr. Adams' superb and skillful handiwork is more prominently demonstrated, and no one can look upon the rich and costly embellishments in these buildings, and their mode of arrangement, without being impressed with the artistical effects they produce.

Mr. Adams is emphatically a "live man," and has attracted a wide circle of friends by his integrity, uniform courtesy and undeviating promptness in the management of his business.

THE HAT INTEREST.

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Leigh Hunt in one of his sketches of London life gives an amusing picture of the almost reverential respect which the modern dandy has for his hat. He represents himself as looking at the wild animals in their cages in one of the public gardens standing before the cage of tigers, and observing these ferocious beasts, together with the crowds of men, women and children who were standing before them, when it suddenly occurs to him how shocking it would be should one of the tigers snap the bars which confined him and spring infuriated into the midst of the group of women and children. Musingly he concludes that it would be a sad accident, when looking at the clouds he observed a thunder storm approaching. He sees that it threatens to rain, and instantly the imminent danger of damage to his hat flashes into his mind. "It would be awful" he ejaculated "should that get wet!" and rapidly flees to a place of shelter. The thought of a tiger loose among a crowd of women and children does not excite him nearly so much as the thought of a shower that would injure his hat!

The hat trade holds a prominent position in the city, the leading house being that of Zollinger Bros., No. 13 Market square. The firm inherited the business from their father, the late Elias Zollinger, who established it at its present location as far back as 1822—making it over half a century old.

The firm carry the largest stock of goods in the city and their trade has reached a very high figure. Every variety of hats and head gear can be found in their extensive and admirably conducted establishment, which is without a superior in central Pennsylvania, so far as sagacious and honorable management is concerned. Every possible advantage in purchasing is improved, and as the firm pay cash for their goods they are in a position to make unusually advantageous terms upon the goods bought here.

Frequently during business hours the establishment is literally a swarming hive, yet every "busy bee" moves about with a definite object in view, and apparent confusion is really nothing less than the most admirable system and order. The invariable testimony of customers bears out the reputation of the house for the reliability of the goods and the prices, which rival the best inducements offered by eastern houses.

## THE SHIRT INTEREST.

Timothy Titcomb in his "Letters to Young People," speaking of dressing well, advises young men to pay particular attention to their dress about the neck, and says a small sum expended for nice neck wear, and above all a true fitting shirt, will go further to make a man well dressed than hundreds spent for fine clothing.

This, no doubt, is good advice; but every gentleman has experienced more difficulty in getting a shirt to fit him satisfactorily than in getting a fine dress suit to please him. In the large cities there are business firms that make a specialty of making shirts to order. They employ good cutters who have learned the trade. The cutting is the most important branch of the business, and only cutters of experience and reputation are employed by the best houses. Good shirt cutters must learn the business as a tailor does, by rule and practice, and be able to draft a shirt with the same accuracy that a tailor drafts and cuts a fine coat. It is a separate branch of cutting, and however good cutter a tailor may be, unless he has learned shirt cutting, he will not attempt to cut one. Until within the last year gentlemen wishing to wear a genteel fitting shirt were compelled to send to New York or Philadelphia for it. Now we have a firm in this city, Ridgaway & Co., No. 23 Third street, whose specialty is making "Fine dress shirts to order."

Mr. Ridgaway, of the firm, is a practical cutter, and gives his personal attention to measuring and cutting. He went into a large shirt house in the city of Baltimore when a boy and thoroughly learned all branches of the business. Since, he has had experience in the best houses in Philadelphia, New York and Chicago, where he was in business at the time of the great fire, and was burnt out. Coming east he was offered a situation in this city and accepted it, thinking a growing place like Harrisburg offered inducements and opportunities to build up a business.

Ridgaway & Co. use only the best materials. They buy, directly from importers, Richardson's round thread Irish linen for shirt fronts. This linen has a world-wide reputation and is superior to any other for finish and durability. They use only the best makes of muslin and have their pearl buttons made to order by the manufacturer, so as to get the right size and style. They make all their own shirt fronts and have hands who work on this part of the shirt only, others working on the body of the garment only, and in this way have trained hands for the different parts of the shirt.

They have all their work done in this city and employ a number of experienced hands and pay them good wages. They are in this way enabled to turn out shirts in style, make fit and durability, equal, if not superior, to the best made in New York or Philadelphia and at less prices.

In addition to making shirts they make to order cotton flannel and flannel undershirts and drawers, night shirts, smoking jackets and dressing gowns.

They also have a complete line of men's furnishing goods of the best and most fashionable styles only. They make a point to buy directly from importers and manufacturers, and are thus able to sell the best goods at reasonable prices.

By fair dealing and giving entire satisfaction in goods and prices they have secured the best custom in the city, and many parties who formerly sent to the city for their goods, now find they can be suited in every way as well at Ridgaway & Co's, and consequently encourage home manufacturers.

THE INSURANCE INTEREST.

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With the great increase in the industrial activity of the United States during the present century the business of fire insurance has kept pace, and the capital men invested in companies doing an exclusive fire insurance business may be fairly estimated at between three and four hundred million of dollars. So clearly has the truth of the principle, that large companies doing a wide and extended business are the safest, been seen by the public, that throughout the most recently settled portions of the country there has been but little opportunity offered for the establishment of local companies, since they cannot offer as good inducements to the public as those presented by the older, richer and better established companies. In this way the insurance business has become a most important interest in certain localities. This growth of the business of fire insurance, as well as that of other kinds of insurance, brought with it at first natural abuses, such as a greater extension of the business than was safe, and also opened a field to the exploitation of speculative companies, which were not based upon sound financial principles, but hoped by success to make money for their stockholders. Should they do a large enough business, and collect sufficient premiums without meeting any losses, it was evident the business was worth trying; but if they should be unlucky enough to meet with misfortunes, the result was only their failure, and the loss came upon the insured, since the actual capital contributed to the company was very little, only enough in fact to pay the expenses of trying the experiment. So numerous were the instances of these insurance speculations, and so disastrous were they to the public who had been deceived by them into supposing that the security could be gained by paying for the policies they issued, that public attention was roused, and measures were proposed for legislative action, by which the governments of the States in which insurance was established should have some control over them, and, in the interest of the public, prevent such companies as were unworthy of confidence from seeking to gain it. From this arose the establishment of insurance departments in several of the States, including Pennsylvania, which exercise a healthy control over the insurance companies doing business within their respective limits. The very essence of fire insurance is security and stability. A company which fails when the crisis comes, for which it pretended to be a safeguard, is worse than no company at all, for it doubles instead of diminishes the loss by fire. The insurer who has taken out one of its policies, finds when his house has burned down that the security he thought he had is worthless, and that he has thrown away the premiums he has paid.

To perform for the public the same office with regard to its insurance policies, that it does with respect to its bank-notes, that is, to provide that the public shall not be cheated in them, is one of the legitimate functions of the government, and is especially so in a republican government, which should be in fact as it is in theory, the agent of the public delegated to perform just such duties as these, for which individuals are necessarily incorporated. By the working of this innovation the danger of speculative fire insurance has been as nearly done away with as is possible with a system of insurance based on individual companies competing for the business.

Almost every substantial insurance company in Pennsylvania, and the eastern, western and middle States are represented by agencies in Harrisburg, all of whom, we presume, do a fair business. William Buehler, Esq., may claim to be the oldest and most experienced insurance agent in the State. He commenced its practice twenty years ago, and has been in constant service ever since. During his business career he has succeeded in attracting the principal portion of that large division of the community desiring first class and reliable insurance. Mr. Buehler occupies a suite of elegant and commodious rooms over the First National Bank, at the corner of Second and Walnut streets, which have been fitted up with special reference to the requirements of the business. He is the State Agent of the Insurance company of North America, established in 1794, with assets amounting to over \$1,000,000, and the Pennsylvania Fire insurance company, established in 1825, with assets amounting to over \$1,400,000, both of Philadelphia, and both distinguished for solid strength and reliability, with an unsurpassed reputation for integrity and honorable dealing. Mr. Buehler also represents locally some of the largest and best insurance companies doing business in the country, among which may be mentioned the following old and reliable institutions:

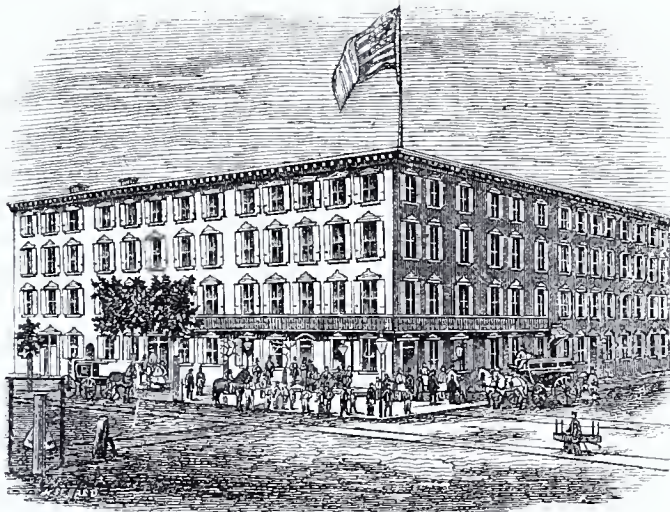
	Assets.
Franklin insurance company, of Philadelphia.....	\$3,200,718
Commercial Union, of London.....	5,760,369
Lancashire, of London.....	2,783,437
Liverpool, London and Globe.....	20,000,000
Hoffman, New York.....	370,728
New York and Yonkers, New York.....	270,028
Continental, New York.....	2,255,937
Commerce, New York.....	268,035
Manhattan, New York.....	586,450
Union Mutual, of Philadelphia.....	294,398
Home, of Columbus, Ohio.....	522,615
Merchants', of Providence, Rhode Island.....	346,127

These are all among the very strongest, finest and richest companies in the United States, as every one well knows, each with hundreds of thousands of dollars at its back; companies who passed unscathed through the Chicago and Boston fires, and can defy half a dozen more like them. They are all well and safely managed, and take only the most desirable risks.

Mr. Buchler has always been identified with the National board organization, now so successfully established throughout the United States, and is at this time President of the Pennsylvania State Board and also of the Dauphin County Board of Fire Underwriters.

## THE HOTEL INTEREST.

There are eighty-eight regularly licensed hotels and taverns in the city, of which some half a dozen or more rank as first-class, the most popular of the latter is the Bolton House.



THE BOLTON HOUSE.

Away back in the good old times when Harrisburg was only an epitome, a pocket edition, a suggestion of its present self, the Bolton House stood, as it has ever since that time, a favorite house for the traveller. It didn't boast of its mammoth proportions or of its high ornamentation in those days, but the small and unpretentious two-story brick building, known as the Eagle House, kept by the late Henry Buehler, Esq., was the sapling which has now become so stately a tree. The city improved in size and style, so did the hotel. Piece by piece it grew from year to year, as the demands of the travelling public grew more pressing, until at last what was left of the original structure was merged into one symmetrical whole—and the Bolton House of to-day stands complete, one of the largest hotels in the city.

Of the building itself little need be said, for its appearance is familiar to nearly all the business or traveling community in the State. A four story brick building, surmounted by a Mansard story, (not shown in the cut,) with a frontage on Second street of 105 feet, and on Strawberry alley of 132 feet, with 128 rooms of the finest description; a dining room 75 by 75 feet, with elegant tiled floor and its every appointment in the best of taste, and designed for the especial purpose of making the guests happy and comfortable.

We might add that Mr. Bolton is proprietor of the Washington House, Chestnut street, Philadelphia, and the Columbia House, Cape May, both well known establishments.

## THE GAS FIXTURE INTEREST.

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The manufacture of gas fixtures is of modern date, and has become one of the most important industries of the day, considering both the utility it serves, and the sense or love of beauty to which it administers. A few years ago the majority of gas fixtures used throughout the world were manufactured in Europe, principally in England and France, and chiefly by small manufacturers. To-day a single establishment in this country makes nearly one-half of all the gas fixtures manufactured in the United States.

There are several gas fixture houses in Harrisburg, but for the unsurpassed, if not wholly unequalled character of their wares, that of F. A. Boehmer, No. 29 South Second street, renders them the representative dealers in their line.

The gas fixtures put up by Mr. Boehmer are to be found in a majority of the dwelling houses, hotels and public buildings in the city, and his work enjoys no less high reputation for its faithfulness, than for the conscientious manner in which it is constructed throughout.

Mr. Boehmer has an extensive experience in the gas business, not only in the fitting branch, but in the construction of gas manufactories, of which he has built and managed several. He commenced business here in 1863, which ranks his establishment as the oldest in the city.

In connection with gas fitting, he does an extensive plumbing business in all its details. He is the special agent of the Seal & Brooks' patent cut-off and regulator for gas and water—one of the most simple, durable and economical inventions of the age. Mr. Boehmer's reputation as a business man is first class in every respect, and he retains personal supervision of his entire and extensive business. His success is the result solely of business energy and tact, of honorable and fair dealing and courteous treatment of all customers.

THE BOOT AND SHOE INTEREST.

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There is no branch of business which our citizens point out to strangers, as an indication of the taste and prosperity of our city, with more pride, than our large fine boot and shoe stores. Decidedly the finest and most noticeable of these is the elegant establishment of Geo. Meily, No. 216 Market street, corner of Raspberry alley

This business house was established in 1868, and has since that date been among the most successful of our mercantile houses. Mr. Meily's fine store is the largest in the city. It is filled with an ample supply of goods of every conceivable kind in his line, and on any pleasant afternoon or evening when thronged, as it always is on such occasions, with people making purchases, it presents a very brilliant and striking scene indeed. We said it was filled with goods in his line of every conceivable kind. Indeed, one is almost bewildered at the display, and notices with wonder what an immense variety of styles of boots and shoes the taste and ingenuity of manufacturers have provided for the comfort and pride of man—and women more especially, because we think they have far more than half of the advantages. Here is everything from the thick-soled "stogies" to the sumptuous and elegant satin gaiter of the bride or ball room *belle*.

Mr. Meily also does a large wholesale trade, and in the great variety of goods contained in his establishment it is an inviting place for merchants to assort up stock. During the past year, notwithstanding the general complaint of dull times, his country trade has grown hand over hand, and nearly every mail now brings orders for boots or shoes from his immense and magnificent assortment.

Mr. Meily has excellent taste in selecting goods, and as he purchases directly from the manufacturers he is enabled to mark them down to the very lowest figures. He keeps a staff of experienced, courteous and affable salesmen, who treat every body "poor and rich" with promptness and fairness. Mr. Meily is a gentleman too well known in Harrisburg to need a word of praise. He has grown up in business here from a boy and has given his whole mind and energy to his occupation. He understands it thoroughly, and is universally esteemed as a reliable and honorable business man.

TINWARE AND STOVE INTEREST

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There are half a dozen houses dealing in tinware, stoves, ranges, etc., but the oldest and most extensive of them is that of Fager & Maeyer, No. 108 Market street, near the Harrisburg bridge. The firm went into business in 1854, in a small way, in the building now occupied by Mr. Duncan's tobacco store, corner of Third and Walnut streets; but their rapidly growing trade soon demanded more room, and in the year following they erected and moved into their present capacious quarters, which is one of the best business locations in the city, and especially favorable to dealers in and shippers of heavy goods, which constitute a large part of the merchandise of this firm.

The increasing wealth and population of the city has materially brought with it a large increase in the number of fine public buildings and private residences, and this together with a better knowledge and appreciation of the principles of every day practical science, and the fact that a good machine or apparatus always advertises itself to some extent, has led to a great demand for the modern improved styles of heating fixtures and cooking ranges, which are a marked speciality in the business of this firm, and one in which they have achieved an enviable reputation.

Within the past few years the firm have gone extensively into the manufacture of galvanized iron cornices, brackets, dormer windows, window caps, turrets, finials, etc., and their work in this line, in point of architectural design and beauty of finish cannot be excelled in the country.

Their immense stock of goods, the well known quality of the articles in which they deal, and, by no means the least, the thorough integrity of the gentlemen comprising the firm, all have combined to give them a reputation and a trade of which they may well be proud. Always aiming to employ none but competent and faithful workmen, to have these carefully taught the best way of doing the work which is assigned to them, and giving personal supervision and inspection to their work, they are able to refer to what they have done in the past with the fullest confidence as a guarantee of future excellence, and all customers may rely upon finding the latest improvements and most improved methods adopted by this house.

THE REAL ESTATE INTEREST.

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It is doubtful if there exists anywhere on the continent such abundant opportunities for profitable investment in real estate as in and around Harrisburg. In a city so full of vigorous activity—with such a solid muscular tissue of commercial and industrial prosperity—with so assured and so splendid a future before it, and moving onward with so swift and steady a pace to grasp the crown of commercial empire in central Pennsylvania—it need not be said that real estate commands good prices; but it is safe to say that there is no city in the country where the prices of real estate are less speculative and more conservative in their character, or more strictly based on the legitimate standard of productive valuation than in Harrisburg.

The main reason for the generally conservative principles which have regulated the real estate movement in this city is the caution which has governed investments, and the resolute and general discountenancing of a speculative tendency to go too far in discounting the future, and in the more or less strict adherence to the actual productive value of the property, what it will bring back in rents to the purchaser as the law of its price.

Of course, there are many individual exceptions to this rule, but it expresses the prevailing tendency. A striking proof of this is afforded in the fact that notwithstanding the depressing effect of the panic last year, which was followed by a great depreciation of real estate in many other places, the prices of all business and residence properties in Harrisburg were maintained at the same standard as before the panic.

The prudence which regulates even the speculative activity of the real estate market at Harrisburg is all the more remarkable from the fortunes which have been made in the business, and from the fact that nearly all investments have proved largely remunerative; have made a great many poor men rich, and by constantly presenting many notable examples of wealth suddenly acquired without effort, have afforded an almost irresistible temptation to withdraw capital from legitimate business enterprises to embark in this field of fortunate speculation, and the temptation would have been less successfully resisted if it were not counter-balanced by as many examples of enterprising citizens who have grown rich in mercantile and industrial pursuits.

In our estimate of localities there is no better spot for judicious investment in real estate in Harrisburg than in the neighborhood of the Steel and Lochiel works. The appreciation of land here will not only be greater, but

necessarily more rapid than in any other section of the city, and as the prices of lots are at ridiculously low figures the profits in a few years must be simply enormous. The prices of building lots in Baldwin and Lochiel have advanced 100 per cent. within three years, and the tendency is still upward, yet even at their advanced rates the price is incredibly low as compared with suburban lots in other cities.

Within the last two years a new town has been laid out about midway between the steel works and the Lochiel works. It has been named Ewington, in honor of Joseph Ewing, a practicing attorney of the city, who is largely interested in the enterprise. It is by far more eligibly located than either Baldwin or Lochiel, as it is situated on a perfect plain, while the latter towns, like Alpine villages, seem to be clinging to the side of hill, a merit which of course facilitates their drainage, but in the ruggedness and unevenness of the streets they scarcely come up to the American idea of handsome villages. Besides the evenness of the ground, Ewington possesses the advantage of communication with the Pennsylvania railroad and canal, the first of which runs along the property, on its west side, and the latter flanks it on the east, thus affording superior opportunities for manufacturing operations. It has also got elbow room sufficient to expand a mile either north or south, with at least the half of this distance in an easterly direction. In fine, there is no village in the United States which in point of geographical location or of manufacturing or transportation facilities can compare with Ewington. This fact will be apparent to any practical man who will spend a moment in studying its position.

Fortunately the owners of the land, unlike many speculators, are pursuing a liberal policy in aiding men of moderate incomes to become the owners of lots. They are not sold at "fancy" prices, but at such rates and upon such terms that workingmen and mechanics of the most moderate means may invest and still live. A large number of the lots have already been sold, and there is every indication, when business activity is resumed, that Ewington will be rapidly built up into one of the most flourishing towns in the vicinity of the State Capital.

THE BANKING INTEREST.

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In our previous description of the leading features of the city, we merely, alluded to our banks in a general way. We feel, however, as if we cannot let the opportunity pass without a more particular mention of at least two of these fine institutions, viz: The Harrisburg National and the City Bank.

## THE HARRISBURG NATIONAL BANK.

This institution was chartered as a State bank, under the name of the Harrisburg Bank, on the 9th of May, 1814, with a capital of \$300,000, and was regularly organized in the month of June of the same year, by the election of the following board of directors: John M'Clury, Isaac Hershey, Henry Bender, Robert Harris, Christian Kunkel, John Howard, David Furguson, William Wallace, Jacob M. Haldeman, Thomas Brown, John Shooch, Abraham Oves and Peter Keller; William Wallace was elected president, and John Downey, cashier.

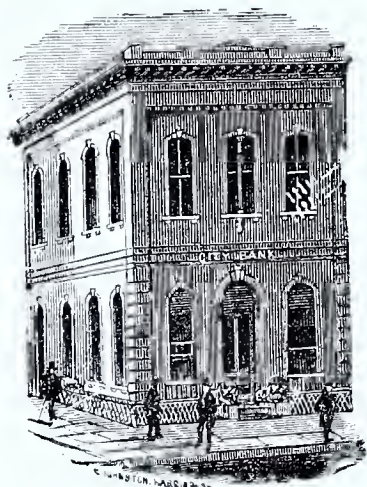
The bank first went into operation at the then residence of its cashier, Mr. John Downey, in the building owned and occupied by Dr. R. Ross Roberts, Second street, a few doors north of Cherry alley. The bank remained here, however, only a few months, when it was removed into the brick building owned by the Messrs. Kelker, in Second street, adjoining the residence of the late Herman Alricks, where it remained until 1817, when it purchased from the Philadelphia Bank the brick building which that company had used as a branch, situated at the south-west corner of Market square and Blackberry alley, in which it continued until the summer of 1854, when the building was torn down to give place to the present elegant structure, the bank in the meanwhile carrying on its business in the room of the adjoining building now occupied by Rebman's store.

Its history is formed of unexampled success from the very commencement, and its affairs have been managed with such rare ability and discernment that it has no record of losses created from any cause inviting criticism or weakening the general confidence in its stability and soundness.

The stockholders and directors are composed of the best material in this and the adjoining county of Cumberland, and the bank is devoted to the interests of legitimate business operations. In the management of its affairs an eminently conservative course has been pursued, and the security of its depositors, and the enviable character of the institution itself, have received the closest and most unremitting attention from all connected with the bank either as officers or stockholders. In short there is not a

better or more conscientiously managed bank in the United States, and the success which has been a portion of its history has not been surprising to those who are familiar with its safe methods of transacting business.

### THE CITY BANK.



This reliable and well known institution was organized in 1861, under the general banking law. It first went into operation in a room of the building, No. 334 Market street, but soon becoming cramped for want of space, the bank erected and subsequently removed to the beautiful and substantial structure it now occupies at the corner of Third and Market streets. From that time to the present its career has been one of prosperity and success. The reputation of its officers as prudent business men and sound financiers gave the public confidence in the stability of the new institution.

and formed a guarantee that its business would be conservatively and successfully managed. The results have justified these expectations, and to-day there is no bank in the State whose credit stands higher than the City Bank.

The interior of the bank shows the presence of all improvements considered desirable or adding to the safety of the funds, books and papers within. The vault, which is 17 by 19 feet in length and breadth, is a perfect prodigy of strength. The walls consist first of a layer of granite stone thirty inches in thickness; inside of this are six inches of fire proof materials, composed of ground fire clay, sand, cement and salt, such as is used in the construction of furnaces, placed there in liquid form, but now as hard as adamantine rock; after this is a layer of twelve inches of oak timber, in which is driven twenty-seven kegs (upwards of a ton) of spikes, upon which no tool of a burglar can make any impression whatever; next comes steel plating four inches in thickness, cast, hammered and put through the rollers at the steel works. The solid pier upon which the vault rests descends thirteen feet, and each side of the roof is composed of four mammoth granite blocks, underneath which is also a coating of steel, etc., rendering it impregnable from an attack above.

There are three doors leading to the vault—the outside door being a marvel of massive iron workmanship, shutting in dove-tails, defying powder, nitro glycerine and burglars' implements, with a double combination lock,

rendering necessary, if the management choose, for two persons, each with a different combination, to be present before it can be opened. But to our mind the most wonderful feature is, that imbedded in the walls is a perfect net work of wires having connection with an alarm, and so arranged that should one of these wires be cut it would start the telegraph instrument in the battery, which, in turn, would start the alarm bell, and at once arouse attention.

It may as well be mentioned that there is room for five hundred boxes in the interior of the vault, in which the patrons of the bank can place their valuables for safe keeping, somewhat on the principle of the "safe deposits" existing in the larger cities. These boxes are furnished at prices ranging from \$10 to \$20 a year, according to size, two keys furnished to each box holder, thus affording a deposit for money and papers which scarcely an earthquake can render insecure.

The officers of the bank are as follows: President, Samuel S. Bigler; Vice President, John A. Bigler; Cashier, Andrew L. Robinson.

## THE PRINTING-INTEREST.

There are published in the city :—

THE PATRIOT, corner of Third and Locust streets; B. F. Meyers, managing editor. The DAILY PATRIOT is published every morning, except Sunday, by the Patriot Publishing Company; mailed to subscribers at \$7 per year; \$3 50 for six months; served to city subscribers at fifteen cents per week. The WEEKLY PATRIOT, \$2 per year; four copies for \$7; ten copies for \$15; fifty copies for \$50; larger clubs than fifty will be charged in the same proportion per copy; to the getter up of clubs of ten or more an extra copy will be given. For other information see specimen numbers, which will be forwarded on application. Terms cash, invariably in advance.

THE TELEGRAPH is published every evening, by Charles H. Bergner; office corner of Third and Market streets. Terms of subscription: Single subscription—the Daily Telegraph is served to subscribers in the city at ten cents per week. Yearly subscriptions will be charged \$6 00 in advance. Those persons who neglect to pay in advance will be charged \$7 00. The Weekly Telegraph is also published weekly, and is furnished subscribers at the following cash rates: Single copies, (weekly,) \$1 50; five copies to one postoffice, \$8; ten copies to one postoffice, \$12 50; twenty copies to one postoffice, \$20.

THE EVENING MERCURY—Published every evening by the Mercury Printing and Publishing Company; S. O. Thomas, editor and manager.

THE SUNDAY DAWN—Published every Sunday morning by J. Trainor King, Third street and Strawberry alley. Terms of subscription \$2 per annum. Single copies, five cents.

THE TEMPERANCE VINDICATOR AND FAMILY JOURNAL—George F. M'Farland, A. M., editor and publisher, No. 18 North Third street, with an able corps of assistants and contributors.

THE SCROLL KEEPER is published monthly, at 325 Broad street, by the Brotherhood Publishing Association.

OUR NATIONAL PROGRESS, published every Saturday; is owned and edited by colored men.

DER VATERLANDS-WECHTER is published every Friday afternoon for \$1 per annum, when paid in advance; for a shorter period than one year, no subscribers are taken. Office in the Daily Telegraph building, corner of Third and Market streets; F. C. A. Scheffer, publisher.

PENNSYLVANNISCHE STAATS ZEITUNG, published every Thursday, by J. George Ripper, corner of Cherry Alley and South Third street.

The history of journalism has no other record of so many and so strong publications existing and flourishing at the same time in a city with the population of Harrisburg. The leading papers of the country exchange with the papers of this city, not merely because they are conducted with ability, but because it is the political centre of Pennsylvania with manufactories and commercial interests whose influences are felt in every section of the country. Thousands of persons scattered through all sections have investments here, and feel that a Harrisburg paper is a necessity to them ; hence none but metropolitan journals can rival ours in diffusiveness of circulation.

With the growth of our newspaper system, job printing and book-binding have assumed very large proportions. Around these extensive establishments, whose work is equal to that done in large cities, the engraver and lithographer have gathered, entirely releasing us from dependence upon the eastern cities, not merely for common work, but also for the finer and artistic specimens of the printing business.

## THE ANTHRACITE COAL INTEREST.

It is stated that anthracite was experimented with early in the present century, at Kingston, Massachusetts, in smelting iron. Though this coal had been for some time satisfactorily used by the blacksmith and iron workers of middle and western Pennsylvania, a load sent to Philadelphia in 1806 was considered, on trial, to be unmanageable. Two years previously it had been used to a limited extent in Philadelphia as fuel, but as a steam generator it was deemed impracticable. There seems, for a long time, to have been a positive prejudice against anthracite; but the war of 1812, which raised the price of bituminous coal, called renewed attention to the coal of Pennsylvania, and to means of mining and transporting it. The "black diamond" began to be used in some iron mills, and stoves for warming houses. In 1824 the Mauch Chunk mines sent twenty-four tons to Philadelphia, but wood was so plentiful that in six years following only 365 tons of hard coal had been sent to that city. In 1820 the anthracite coal business may be said to have really begun by the shipment of 325 tons to Philadelphia, and in the same year 70,000 bushels of hard coal from Maryland reached the same city. Five years later the Lehigh mines sent to market 28,396 tons; the first working of the Schuylkill region in the same year resulted in a product of 6,500 tons. From that time forward the progress in coal mining was rapid and immense; how rapid and how immense, may be shown in the fact that the Philadelphia and Reading railroad company and its branches alone, during the year 1873, shipped 6,546,553.08 tons.

The first anthracite coal used in Harrisburg was brought here on an ark from Wilkesbarre in 1810, and was at that time considered more than sufficient to supply the town for a year.

It is difficult to estimate the amount of coal now annually used in this city, yet an approximation may be arrived at sufficiently near to answer our purpose. Thus the aggregate amount of coal, of all kinds, consumed in *twenty-two* of the manufacturing establishments noticed in this work, is one hundred and ninety-eight thousand five hundred tons. Add to this about fifteen thousand tons used by the other manufactories of the city, the water works, the lunatic asylum, State buildings and hotels, and we shall have a total of over two hundred and thirteen thousand tons annually consumed by the establishments indicated. Then estimating the population of the city at thirty-five thousand, and allowing the usual ratio of five to a family, will give us seven thousand families. Each of these will consume at the very lowest average eight ton of coal per annum. This

will give us fifty-six thousand tons used for domestic purposes, outside of the hotels, which added to that consumed by the establishments above stated, will give us the grand aggregate of over two hundred and sixty-six thousand tons of coal of all kinds annually consumed in Harrisburg.

There are perhaps a dozen or more of coal dealers in the city, but the firm which lead all the others by an immense stride is that of Mitchell & Haggerty, whose offices are at Third and Chestnut, and Third above Cumberland streets. This firm might be called the pioneers of the Schuylkill coal trade in our city, not that they were the first to introduce the "black diamond" from that region, but they were the first regularly appointed wholesale agents, who by their energy and industrious business qualifications, found new markets and built up the trade generally in this section to its present dimensions. How grand these dimensions are, and how rapidly they have been achieved, may be best shown in the fact that previous to the establishment of the firm of Mitchell & Haggerty, the annual total amount of the Schuylkill coal trade here did not reach over one thousand tons, while now the trade amounts to over one hundred and twenty-five thousand tons annually and constantly growing. Of course this coal is not all actually consumed in this city, but is marketed here and shipped to dealers at various points south, west and north of us.

Mitchell & Haggerty, however, do not confine their trade to the Schuylkill coal alone, but deal in every variety known to the market. Outside of their extensive wholesale transactions their retail trade is very large, more so, perhaps, than that of any other firm in the city. They own two extensive coal yards—one centrally located and the other in the upper section of the city—in which the coal is kept under shed, and carefully screened before being delivered to purchasers.

We need not say a word concerning this firm personally: it is known to every business man in central Pennsylvania as number one, and those who deal with it will find promptness, reliability and integrity, the three cardinal virtues of business men.

## THE PHOTOGRAPH INTEREST.

As an industrial pursuit, photography has grown to surprising proportions. The best indication of the immense extent to which pictures are taken is found in the quantity of prepared or albumenized paper required. There are but two mills in the world where this is made, one in Germany and the other in France, the finest and purest of linen being used, and every part of the process is carefully watched, as the least metallic substance in the pulp would render the paper wholly unfit for photographers. There are four hundred and eighty sheets in a ream, and each sheet as consumed by the artist, makes probably thirty pictures; that is fourteen thousand four hundred photographs are made from a ream. We import thirty-five hundred of these reams annually. This indicates the amazing number of fifty million four hundred thousand photographs made every year. Besides photographs there are ferrotypes, made by throwing a picture on a surface of tin. This is the cheapest form of picture and great numbers of them are taken, nearly every large town having one or more cheap galleries where six pictures for a quarter draw the million.

There are several photographic galleries in the city, but those which have obtained the most prominence and the highest reputation for artistical beauty and finish of work, are the two owned and operated by Lerue Lemer. Both of these establishments are centrally located, the one at the north corner of Market square and Market street, and the other at the corner of Market street and Raspberry alley. They are not only elegant but spacious, furnished with great taste and appointed with all modern conveniences. Mr. Lemer is evidently of that order of successful business men who have an eye to the aesthetics of life. We have frequently remarked in our inspection of business establishments throughout the country, that the highest class of business men are turning their attention more and more to neatness, convenience and elegance in their establishments; and as a consideration of business tact, this fact is worthy of comment, inasmuch as these things add to the comfort and pleasure of customers.

Mr. Lemer commenced business fifteen years ago, and has in that time taken off more "heads" than did the guillotine in France during the palmyest days of the reign of terror—only in his case the "executions" were not only pleasant to the participants, but left them tokens of beauty which are a joy forever.

The reputation of Mr. Lemer, as a superior photographic artist is State wide, and *cartes* bearing the impress of his establishments are scattered

far and wide over the entire country. His pictures are distinguished for their softness and delicacy of finish, the judicious blending of light and shade, elegance of pose, and a faithfulness of copy, in which one can see the image of himself or herself as distinct as if reflected from the surface of a polished mirror. Mr. Lemer is particularly happy in his groupings, and many of these are noticeable triumphs of art. During the last several years he has photographed the Senators and members of the House of Representatives in groups, which have elicited universal admiration. Several other large deliberative bodies have also been "taken off" admirably by Mr. Lemer. In short, as an artist, Mr. Lemer has few superiors in the country. He is a gentleman of high personal character, warmly esteemed by all who know him, and his success can be regarded only as the legitimate reward of persistent well-doing.

## CONCLUDING REMARKS.

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Important and extensive as are the manufacturing and mercantile houses that we have described in the previous pages, they afford a very inadequate measure of the business development of our city. There are few cities of thrice the size, equal Harrisburg in business activity, in the extent and wide geographical range of its trade, in the volume of its current financial transactions, in the solid strength and high standing of its business houses and banks, in the external marks of energy and vigorous prosperity which are visible in the ceaseless whirl and clatter of its great work shops, in the rush and shriek of its half hundred trains arriving and departing daily, in the solid and stately architecture of its business streets, in the palatial elegance of many of its private residences, churches and other public buildings. Its business and industries have increased even faster than its population, while their capacities of expansion are limited only by the amount of capital invested in them.

Without a doubt, a man who had the power to truly portray what Harrisburg will be in 1880, would reveal a condition of affairs astonishing to even our own people. We think he might tell them that Harrisburg has the finest manufacturing and transportation facilities in the whole country, and that it would be improved to such an extent that we should become the great *entrepot* for the supply of the interior of this and the adjoining southern States. That the city will have extended its bounds on the north to Rockville, on the south to the steel works, and that every foot of the now vacant ground between these points, and between the river and the extended line of the city limits on the east, will be occupied, and that busy life will be seen, and that the roar of a mighty city will be heard were to-day are seen only green fields and growing corn.

And how shall we count up the multitude who make up this great city? We do not need prophetic aid to do this. We take the increase in our population for the last ten years as the basis for our estimate. The causes which have produced this immense increase, have, as it were, just commenced to operate. When we see the effect of those causes in full operation, we will see such an increase that incredulity will give place to astonishment. We believe we make a very low estimate when we say that in 1880 the population of Harrisburg will be more than fifty thousand souls. This is no loose, exaggerated statement, but it is the result of careful study and cool calculation of facts and figures and causes and effects, and we have not a doubt but that time will fully demonstrate the correctness of our estimate.

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